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THE NEW BATTLE OF THE TIRES.

THERE is reason to believe, in view of the rate at which investments have been made by large capitalists in the promotion of the automobile, that they have sufficient assurances of a coming demand to justify their interest in the new vehicles. The story of how the locomotive displaced the old stage coach is likely to be repeated in the case of these more modern horseless carriages. The automobile will find a place, for one thing, in supplementing the railway systems by carrying passengers and freight to points to which it would hardly pay to build lines of rails. In the crowded streets of cities the automobile is bound to appear, not so much on account of being cheaper than the use of horses for performing a given service, but because it will perform a service far beyond the capacity of horses. The automobile will yet be as far ahead of the horse drawn vehicle in point both of capacity and of speed as the modern ocean steamship is ahead of the small sailing craft in which Columbus crossed the Atlantic. If people were going to remain content with the present size of street loads, drawn at the present rate of speed, they might as well keep their horses and cabs and trucks. Space will be saved in the use of the new vehicles, since at present the horses occupy as much or more room in the streets than the loads which they draw. The removal of horses from street traffic will tend to an increase of cleanliness, and the introduction of the automobile will aid in bringing about better pavements, incidental to which there will be less noise.

It is nowhere expected that the new vehicles will prove a success without rubber tires. But the problem of what is the best tire to meet the new requirement remains to be solved. Large amounts of capital have been invested in patents on solid tires and pneumatic tires, and in companies organized for their manufacture, and a live contest between the rival types of tires will be in the nature of things. Not only this, but the principal patents themselves are in litigation, and any one who has followed the course of a patent suit need not be surprised if the tires to which attention has been drawn most prominently should be decided finally to be without valid patent protection. The opening of their manufacture to the world would increase the competition, and everybody knows that such a condition often has tended to lower the standard of quality in rubber products.

Fortunately, for the quality of automobile tires, the manufacture of the vehicles will be controlled really by a few interests, provided with ample capital, and not likely to endanger their standing with the public by sending out inferior tires. The condition will be different from that which has prevailed in the bicycle trade, in which there have been many hundreds of wheel makers, many of them with insufficient capital, and most of them seeking constantly to lower the standard of cost of tires. It was natural that the bicycle trade should be able to obtain tires at any price which might be bid, many tires having been sold of such a quality that no manufacturer would put his name on them. One result might have been foreseen—

the greater part of the bicycle tire business to-day is in the hands of manufacturers who have refused steadfastly to cater to the ultra cheap trade. The same thing is going to happen in the business of supplying tires for automobiles.

But the first question is: What type of tire is going to "stand up" best under these heavy vehicles? It is a new battle of the tires—the first having been fought between the rival bicycle tires in the early days of that trade. Some people came to grief by guessing wrong as to the tire best suited for cycling, and some others may guess wrong with regard to the coming automobile tire.

THE COMPOSITE RUBBER EXHIBIT.

BECAUSE it is possible to have too much of a good thing, the Paris Exposition of 1900 will be organized on the basis of putting quality before quantity. It would be an easy matter to fill the whole space to be devoted to manufactures with products of the India-rubber industry alone. Long galleries could be filled with display after display of the varied goods manufactured by each of the important rubber concerns in the United States. Then like displays could be obtained from Great Britain, from Germany, from France, and from Russia. But merely to look through such an array of rubber goods would entail such weariness as would keep everybody away from it, save possibly a few experts in that particular branch. The idea will prevail there that the state of progress which has been reached in the rubber industry can be illustrated better by the intelligent grouping together of well chosen samples than by a succession of large exhibits, each representing a separate manufacturer and each very like all the others in eyes of the casual observer. It does not follow, in working on this plan, that an especially good article, no matter by whom produced, will be lost sight of in a composite exhibit such as the rubber manufacturers are asked to make. In fact, a good thing is more likely to attract attention in a limited amount of space devoted to a given industry than if a visitor had acres of space to look through before reaching it.

It is to be kept in mind that our rubber men are to go to Paris, not to convince themselves that they can make goods of a high grade, or can sell them at low prices, nor yet to prove this to the American people. The manufacturers know this already and our whole country knows it hardly less well. The thing to be done is to teach the fact to the rest of the world—to convince foreign buyers that "Made in America" is a good trade mark for rubber goods. Without doubt this can best be done by grouping the best things that can be made by the best factories, practically as one exhibit, resulting in such a high standard of excellence as cannot fail to catch the eyes of all visitors who care about rubber. Such a course will not prevent each exhibitor from being considered in the jury awards, while it would help any firm more, for future advertising purposes, to be able to refer to having had part in a notable union exhibit than merely to have obtained a medal for excellence in an individual exhibit, in common with a score or more other individual exhibitors. Each exhibitor then practically gets credit for the excellence of the whole display.

Another point is that more can be had for one's money by clubbing together in the matter of exhibits—the attendance of salesmen, care takers, and the like can be secured, for a combined exhibit, on a scale which would cost beyond what most members of the trade would be willing to pay for their individual use. The same is true of shipping exhibits to Paris, their receipt, installation in Exposition buildings, and so on.

THE PACIFIC CABLE PROPOSALS lend renewed interest to the question of the Gutta-percha supply. Beginning with an article contributed recently to *l'Electricien* by M. Adolphe Combanaire, there have been many allusions in European journals to a scarcity of this material, without which, in the present state of the arts, the laying of ocean cables would be impracticable. Already the cost of such cables is very great, and if even rumors of a new line have the effect of stiffening the prices of Gutta-percha, the construction of very few new cables might render the expense of further undertakings prohibitive. But it happens that very little is really known of the extent of the supplies of Gutta-percha. A leading firm in Singapore wrote some time ago to THE INDIA RUBBER WORLD: "The production is governed by the demand. There are large tracts yet unbroken into, and enough to supply all demands for many years to come, we should say." When one considers that even in Brazil, where rubber gathering has longest been practised on a large scale, new sources of supply are coming to light constantly, it will be understood how it is possible that similar discoveries may yet be made in the Gutta producing regions of the the East Indies. The belief prevails that Gutta-percha exists in the Philippines, and American enterprise will be at work shortly to discover whether this be true. But even if the growth of Gutta trees should be found to be confined to the countries known already to be producers, it doubtless is true that by far the greater part of the territory in which such trees exist has not yet been explored. By the way, since the publication of M. Combanaire's paper, that gentleman has undertaken a mission to the Malaysian countries, to report upon Gutta-percha resources, in connection with the Paris Exposition of 1900.

EXPORTS OF AMERICAN RUBBER GOODS appear to be increasing. Reports reach THE INDIA RUBBER WORLD of good-sized shipments of good grades, showing that it is not merely low-priced products that are going abroad. No doubt if a stricter classification of exports could be enforced, rubber goods would make a better showing. Thus if we make large shipments of bicycles, the tires they carry are not reported as "rubber goods," and the same is true of the rubber rollers on clothes wringers, and so with many other articles. It doesn't matter about the classification, however, so long as we get the business, and this suggests the fact that rubber druggists' sundries have been shipped from this city labeled "nails"—in order to enter certain foreign ports at a more favorable rate of duty. The table of rubber exports printed on another page, showing a wide distribution of our products, will repay study. These goods are selling on their merits, and wherever a dollar's worth is going to-day, a hundred dollars' worth ought to go in time. The demand for manufactured products of every kind is growing all over the world, and rubber should share in the new rate of consumption.

TO ORGANIZE A RUBBER EXHIBIT.

THE Hon. Ferdinand W. Peck, United States commissioner general to the Paris Exposition of 1900, has appointed Mr. Henry C. Pearson, Editor of THE INDIA RUBBER WORLD, honorary expert on India-rubber to the United States commission. The scope of this appointment includes the getting up of an organization of the American rubber manufacturers, for the purpose of forming a collective exhibit of their products. The rubber exhibit will come under the general supervision of the director of varied industries—a position filled by Mr. M. H. Hulbert — in whose charge several other industries will be placed, while certain of the larger industries will each occupy the attention of a single director attached to the United States commission.

SHARPS'S NEW RUBBER SUBSTITUTE.

THE announcement of The Manufactured Rubber Co., with a capital stock of $6,000,000, and with a new rubber substitute as its reason for being incorporated, was made in the last issue of THE INDIA RUBBER WORLD. The off-hand conclusion of the rubber trade at large was that somebody was going to be badly bitten, nor is this conclusion to be wondered at, when one remembers the money that has been lost in companies that have started out to manufacture rubber substitutes with the belief that they really had something that would replace crude rubber. At the same time, there is a feeling in the trade that it is remotely possible that sometime a genuine substitute for rubber may be produced, and when that time comes that somebody will make millions out of it. It was, therefore, with interest, and a modicum of doubt, that the Editor of THE INDIA RUBBER WORLD called recently at the office of the company named in Philadelphia and asked to see a sample of the new gum. This was instantly produced, and, in all fairness, it must be said that it appeared to be far more elastic than any linseed oil substitute that has yet appeared. The treasurer of the company, Mr. Platt, acknowledged that he was not a practical rubber man and really did not know what the substitute would do, except through such meager reports as they had from the first small samples. He seemed to lay stress upon the idea that, if 50 per cent. of the substitute were added to Pará rubber, experts would not be able to detect its presence by physical tests. A statement of this kind of course seems a very strong one to a man who is unfamiliar with rubber compounding, but it was explained to him that 50 per cent. of whiting added to Pará rubber would make a substance that would pass for pure gum, and that whiting would cost only a fraction of a cent a pound, while the substitute is valued at 30 cents a pound. Mr. Platt said further that the company had a small plant which was turning out a little of the gum at present, and that they would be very glad to supply enough to have it thoroughly tested by some practical rubber manufacturer. THE INDIA RUBBER WORLD hopes to take advantage of this offer, and in a later issue to give a definite statement of the value of the substitute as a rubber ingredient.

RUBBER DISCOVERED IN CUBA.

IT is the positive conviction of Major J. Orton Kerbey, who returned lately to the United States from a tour of Cuba, that he found there the true rubber tree of Central America (*Castilloa elastica*) growing native, and that the conditions for its cultivation are more favorable on the island than even in Mexico or Nicaragua. Major Kerbey pursued his investigations further into the interior of Cuba than any recent visitor, from America, at least, has done in recent times, being aided in his search for the rubber tree by orders from the government at Washington which gave him command of the facilities of the United States military establishment on the island. On the southern coast of Cuba, in particular, he personally saw the trees which he has identified as the *Castilloa elastica*, while he was assured by old residents of good standing that such trees were to be found in abundance. Moreover, he was assured that, in former years *goma* (rubber) figured in the exports of Cuban produce, going presumably to Spanish ports. Major Kerbey is writing some results of his discoveries for THE INDIA RUBBER WORLD, and the information he has to give may be looked for with interest.

THE LITERATURE OF RUBBER.

EL HULE EN GUATEMALA, POR JOSÉ HORTA. GUATEMALA: IMpreso en la Tipcgrafia Nacional. 1899. [Pamphlet. 8vo. 20 pp.]

THIS pamphlet, favoring the cultivation of rubber (*Castilloa elastica*) in Guatemala, has been prepared at the instance of Señor Don Antonio Barrios, minister of the interior, who is deeply interested in this subject. A further report, it is understood, is in preparation. A translation of portions of this pamphlet has been made by Mr. A. M. Beaupré, our consul general in Guatemala, and published in "Advance Sheets of Consular Reports—No. 370," to be obtained from the secretary of state, at Washington.

THE twelfth annual report of the royal botanic gardens of Trinidad, for the year 1898, reviews Superintendent Hart's experiments with various species of rubber yielding plants.

IN CURRENT PERIODICALS.

EXPLOITATION of Caoutchouc in the French Soudan. *Revue des Cultures Coloniales*, Paris. June 5, 1899. pp. 321-323.

Rubber in India. [From *The Planter.*] *The Tropical Agriculturist*, Colombo. May, 1899. p. 752.

The Royal Botanic Garden, Ceylon. Extracts from the Report of the Director for 1898. [Containing notes on India-rubber.] Supplement to *The Tropical Agriculturist*, Colombo. May, 1899.

Exploitation of the Caoutchouc Vines in Africa. *Journal d'Agriculture*, Paris. April 22, 1899. p. 619.

Province of Finarantsoa—Wild Fruit Trees and Caoutchouc Vines. *Journal Officiel de Madagascar et Dependances*, Paris. No. 360.

The "Guidroa," a Rubber Tree of Madagascar. By Henri Jumelle. *Comptes Rendus*, Paris. May 29, 1899. pp. 1349-1352.

Articles on Improving the *Ficus* of Annam (Hué), or "but-ngoe," for Caoutchouc. By Dr. K. Coppin *Bulletin de l'Union Agricole Caledonienne*, No. 27.

Seeding of a Ceará Rubber Tree in Thirteen Months. By E. Lagrésille. *Bulletin de l'Union Agricole Caledonienne.* No. 27.

Experiments by H. Pohl in the Coagulation of *Hancornia speciosa* ("mangabeira" rubber). *Boletim do Institutio Agronomica do Estado de Sao Paulo.* Nos. 7-8.

Refutation of the Rubber Statistics of Dr. D. Morris. *Indian Gardening*, Calcutta. No. 5, 1899.

State of Experiments with Coffee, Tea, Rubber, and Tobacco in British North Borneo. *De Indische Mercuur*, Batavia. No. 9.

Commendation of "Hule" (*Castilloa elastica*) Gathered in Guatemala. By M. Alberts. *De Indische Mercuur*, Batavia. No. 11.

Monograph on *Manihot Glaziovii*, (conclusion—9 pages and plate.) By Dr. Otto Warburg. *Der Tropenpflanzer*, Berlin. No. 3.

Extracts from the German Colonial Report for 1897-98, on Caoutchouc, Coffee, etc. *Der Tropenpflanzer*, Berlin. No. 3.

Germination of the Seed of the *Hevea Brasiliensis* Grown Several Months on the Pitas Estate, Kudate, British North Borneo. *Der Tropenpflanzer*, Berlin. No. 3.

THE DECAY OF VULCANIZED INDIA-RUBBER.

With Special Reference to Cable Insulation.

THE great increase within the last few years of the use of vulcanized India-rubber in the insulation of cables for electric lighting purposes seems destined to receive a severe check, writes Hubert L. Terry, F. I. C., in *The Electrician*,* as the rumors which have been current for some time with regard to the failure of rubber covered cables have been confirmed by the replacement of these by cables insulated, not with hydrocarbons, but with bodies less susceptible to oxidation and decay. To those familiar with the manufacture and use of vulcanized rubber goods, says the writer, there is nothing startling in this development. In the cases of elastic thread or fine sheet goods, where rubber and sulphur are the sole components, the properties of the material can be pretty accurately gaged from previous experience. But where new materials are used, or combinations of new and old materials, it is an extremely risky procedure to attempt to forecast the span of life of the finished article, especially as the conditions under which it is used and the influences to which it may be exposed are not matters of common knowledge to him who is called on to give a guarantee.

Mr. Terry notes that John Spiller, F. C. S., seems to have been the first whose attention was strongly directed to the subject of the decay of vulcanized rubber, and his experiments are described in a paper before the Chemical Society.† He showed that India-rubber which had undergone atmospheric oxidation consisted in part of a hard resin containing 27 per cent. of oxygen. After a lapse of some years Charles A. Burghardt, PH. D.,‡ stated that this resin, found by Spiller, was an acid, was soluble in alcohol ether and benzene, and formed, with alkalies, soaps soluble in cold water. Burghardt also stated that another resinous body was produced by the oxidation of India-rubber, having different properties from the above, being insoluble in alcohol ether and benzene, and not being saponified by alkalies. He further said that sound rubber, which might contain up to 3 per cent. of the soluble resin, never contained any of the insoluble. Following this, Mr. Terry himself, in a paper before the Society of Chemical Industry,§ referred casually to these oxidation products, though his paper was concerned primarily with the resins naturally occurring in the various grades of crude rubber as found in the market. He is not aware that other investigators in the subject have arisen, but the subject of these oxidation resins seems, in its relation to the lasting power of vulcanized rubber, to be of more than merely casual or scientific interest, and he has recently paid further attention to it. The remainder of Mr. Terry's contribution to *The Electrician* may be summarized as follows:

Pure unvulcanized rubber has a very much longer life than has the vulcanized product. Whatever may be the exact stages in which the catastrophe is brought about, there can be no doubt that the primary cause of decay is the free sulphur in the goods, and the principal agents in causing the sulphur to exert this inimical action are sunlight and oxygen. Exposure to continued heat will also rapidly cause vulcanized goods to decay. The first result noticed in all these cases is a softening, then a hardening of the surface of the rubber, which soon loses its elasticity and becomes brittle. When the oxidation has proceeded to a final stage, the rubber can be ground into powder with a pestle and mortar, in which stage it contains a good deal of the insoluble resin described by Burghardt, and but little of the softer resin of Spiller.

Now as pure unvulcanized rubber is not found to contain these resins, it is clear that the sulphur, probably in the form of sulphuric acid, is the main cause of their formation; and the problem how to render the sulphur incapable of acting in this injurious way suggests itself as one worthy of very earnest attention. The free sulphur may not, of course, be entirely to blame; the combined sulphur may also act inimically. It is well known that black elastic thread decays and becomes hard in the same way that the gray thread does, although in the former case all the free sulphur is supposed to be removed by boiling in caustic alkali. However, the free sulphur is probably not wholly extracted by the alkali, and the action of the latter in rendering the surface of the rubber more amenable to atmospheric oxidation may cause the small quantity of free sulphur that is left in the black thread to do as much damage as does the large quantity of free sulphur in the gray or devulcanized thread.

In investigations of this sort it is important to be sure that one is dealing with pure rubber and not with an admixture, which renders elastic thread the best material to work upon, being, as it is, almost the only India-rubber article that has not been adulterated in some manner. Some years ago, when numerous cases of the rotting of elastic webbing formed the subject of investigation, the evidence seemed conclusive that oxide of copper used in the dyeing of the cotton or silk was the primary cause of the mischief. Not that copper was present in every case of decay, but there was decay whenever copper was present, and the discovery proved opportune and important in regard to other applications of India-rubber, such as in the waterproofing of textiles, and in the manufacture of electric cables.

The exact way in which the copper oxide acts is rather mysterious, nor is the oxide the only delinquent, as both the metal and the various salts act in a similar manner. The fact that the metal is injurious to a high degree is, however, enough for the practical man, and advantage is taken of the knowledge to prevent, as far as possible, both in the manufacture and in the use of India-rubber, any contact between the hydrocarbon and the metal. Grease of any kind is also very destructive to rubber goods, its chief action being to soften the surface and put it in a condition to absorb more readily the atmospheric oxygen. It is important to recognize this, because otherwise it may seem difficult to reconcile a custom which prevails in the industry of mixing oil with the rubber in the manufacture of certain classes of common goods. Oil is injurious only under certain conditions, and a failure to recognize this has proved a stumbling block to chemists who, with insufficient knowledge of the subject, have sought to explain certain cases of the decay of rubber goods.

The principal agencies which determine the life of vulcanized rubber being recognized to be copper, grease, heat, light, and air—and sulphuric acid, the product of the air and light upon the free sulphur in the goods—it may be of interest to discuss these agents more particularly in reference to rubber covered

* London: Vol. XLIII, No. 5 (May 26, 1899), pp. 160-162.

† *Quarterly Journal of the Chemical Society of London*, 2d. ser., III (1865), pp. 44-46.

‡ *The Journal of the Society of Chemical Industry*, II (1883), pp. 119-122.

§ *The Journal of the Society of Chemical Industry*, VIII (1889), pp. 173-175.

cables. That the injurious action of copper on rubber is recognized by the cable makers is clear from the fact that the copper wires are always tinned, but what does not seem to be so fully patent to the cable makers is the general inadequacy of this tinning to fulfil its destined object. Whether or not it is due to too thin a coating of tin cannot now be stated, but the great number of cases in which the rubber sheet covering the wire is found rotten by the action of the copper show that the tin is anything but an adequate preservative. No doubt the sulphur in the vulcanized rubber covering has a good deal to do with it. The sulphur is supposed to go no nearer the wire than the separator, but how often is it found that it goes through all the rubber to the copper. The writer has found that not only was the first covering of fine sheet rubber destroyed by sulphide of copper, but the separator also, after which he had no difficulty in understanding how certain cables had proved unsatisfactory. It is quite clear that this formation of sulphide of copper is not prevented in practice as it should be. That a better tinning would help to put things right seems very probable, and if, in addition to this, the fine sheet was put on rather more thickly and was not so attenuated, there would be reason to expect less complaint of the formation of sulphide of copper.

Rubber having but a limited life at the best, it is important to defer its final break-up by all possible means, especially when the rubber enters into competition with such inert substances as asphaltum and paper. It is difficult to avoid a suspicion that keen competition has had a bad effect on the cable manufacture. Passing over the cut sheet economy, the separator and vulcanized rubber mixings would, in many cases noticed by the writer, be all the better for containing more rubber and less of the material which makes but a sorry substitute for it, and it is unfortunate that the price has come to be such a prominent consideration in the manufacture. Compared with the effect of the copper, there is, in the case of the cables, little to be apprehended from the other influences mentioned as destructive to rubber, except, perhaps, heat. Prolonged exposure to temperatures above the normal may, in some cases, explain the early failure of rubber covered cables.

Of course, in the case of cables, as with other classes of rubber goods, due caution must be exercised in assigning the cause for deterioration. A great many different substances enter into the composition of an insulation; a great many processes have to be gone through before the cable is ready for use, and it is consequently not at all easy in many cases to say to what the blame should be attributed. But when one hears of cables going wrong, and finds that the rubber is decayed and, moreover, contains salts of copper, there need be little hesitation in holding the copper to blame. In the absence of free sulphur, no doubt the influence of the copper would not be so marked, though, as Professor James Dewar has shown, the metal itself has a destructive action on rubber. Hence it would seem important to reduce the free sulphur in the vulcanizing rubber to the lowest figure possible, though this naturally means a longer time for vulcanizing and the consequent submission of the rubber compound to a rather severe strain. If this compound contained much good rubber it could stand this strain, but, as common material seems to be much used, it would be of doubtful expediency to submit it to a long vulcanization.

* * *

IN commenting upon the above paper, the editor of *The Electrician* remarks: "India-rubber has certainly been disappointing as an insulator for electric light cables. So far from any decay of the material being anticipated ten years ago, the very fact of certain inexplicable chemical or electrolytic actions having been known to destroy the sheathing of lead covered cables was an argument in favor of the non-adoption of the latter for electric lighting purposes; and, in spite of the greater skill required in joining the India-rubber insulation, and the greater cheapness of lead covered systems in many instances, rubber held its own for many years in underground networks. Mr. Terry suggests that the cause of the decay of vulcanized rubber is the action of either the free or the combined sulphur on the copper in spite of the tinning, with the result that both rubber and copper are affected. If such is really the prime cause of the deterioration of the cables, it must be that this chemical action renders the India-rubber more liable to be affected by external influences, for otherwise the decay of the material would take place from inside instead of from outside. That vulcanized rubber wires and cables used for house wiring enjoy a practical immunity from this decaying action also points the same way. However, it is by no means certain that Mr. Terry's hypothesis is a correct one. At all events, we cannot agree with him that the properties of pure India-rubber adapt it to take the place of vulcanized compound for electrical purposes."

* * *

THE discussion of the oxidation of India-rubber appears to have been preceded by a study of a similar development in the case of Gutta-percha, which was treated fully by William Allen Miller in the "Report of Joint Committee Appointed by the Lords of the Committee of Privy Council for Trade and the Atlantic Telegraph Co. to Inquire into the Construction of Submarine Telegraph Cables."* Spiller's paper, above quoted from, referred to A. W. Hofman's "Remarks on the Changes of Gutta-Percha Under Tropical Influences."† Another important contribution to the subject is a paper on "India-Rubber and its Decay," by William Thomson, LL. D., F. R. S. (now Lord Kelvin).‡—THE EDITOR.

THE MANUFACTURE OF DERMATINE.

THIS material was brought out by M. Zingler and patented in England in 1884–85 as a substitute for India-rubber and Gutta-percha. The name adapted was derived from the Greek *derma* (the skin). It is manufactured on a large scale by the Dermatine Co., Limited, No. 95 Neate street, London, S. E., of which John Cooper is the managing director. Some of the applications are for machinery belting, hose, packing rings, hydraulic ram and cup rings, hat leathers, etc. A driving belt of this material used in the Dermatine works, 115 feet long, 24 inches wide, and ¾ inches thick, is referred to as having been in constant use fourteen years, without showing any sign of wear. Dermatine hose is said to be specially stipulated for by the London county council when tenders are invited for the supplying of valves, hose, and washers. Dermatine is described as being "very like India-rubber in appearance, though much closer and finer in texture. It consists, like rubber, of a combination of gums and chemicals, treated, of course, in a special way, and is vulcanized much in the same way as India-rubber. It is flexible, but not brittle; and, unlike ordinary rubber, it is inadhesive, cannot be easily stretched, and is absolutely unaffected by changes of climate or temperature. It can be made almost as hard as vulcanite, and is, therefore, specially useful for such purposes as steam joints for faced flanges, stop valve seats, and other positions under heavy pressure."

* "British Parliamentary Papers," 1860, Vol. LXII. [Reprinted in *Quarterly Journal of the Chemical Society of London*, 2d ser. III (1865), pp. 273–284; *Journal the Franklin Institute*, 3d ser., LI (1866), pp. 128–131, 190–195.]

†*Quarterly Journal of the Chemical Society of London*, XIII (1861), pp. 87–90.

‡ *The Journal of the Society of Chemical Industry*, IV (1885), pp. 710–719.

PUNCTURE FLUIDS FOR PNEUMATIC TIRES.

NOW that a certain company have come to the front, with the statement that they are the original and only patentees of fluids for puncture closing in pneumatic tires, it may be of interest briefly to review the different liquids that have been put upon the market.

To begin, it may be well to state that American manufacturers of tires are very far from being favorable to this type of tire repairing, the chief objection being that some of these liquids form a coating on the inside of the tire which keeps a patch from adhering, when a serious puncture is to be treated. It must be remembered that most of them manufacture their own repair kits, which they prefer to sell rather than to keep in stock while the puncture fluid sells.

A leading tire manufacturer, under the heading of "Anti-Leaks," writes: "Beware of all so-called healing mixtures. It has been known by every maker of bicycle tires for years that sticky compounds on the inside of the tire would close small holes. It has also been known that the majority of these compounds prevent permanent repairs when a repair becomes necessary. Every one of these compounds has been put on the market by concerns having little or no connection with the rubber business, and in nearly every case the effect on the tires is hurtful. It is quite possible that the compounds do not contain anything that is actually injurious to the rubber, but they almost invariably contain something that prevents the cement from holding firmly when it becomes necessary to cement a patch in, or to prevent the tire from being cleaned thoroughly when it is necessary to vulcanize. Many of the compounds also contain materials that are positively injurious to the rubber and completely ruin the tire in a short time. Owing to this we have adopted a general rule, and our guarantee does not apply to tires which have been treated with these compounds."

On the other hand, no less a concern than the Dunlop Pneumatic Tyre Co., in 1898, brought out what they called the "Dunlop Puncture Stop," which they thus describe: "It consists of a viscous, but not oily, fluid, which is injected into the inner tube. In this fluid there are suspended numerous small granular particles, and when a puncture occurs one or more of these granular particles, in an endeavor to escape, is conveyed to the aperture, which it promptly closes. By this means pin pricks, thorn punctures, and all small injuries to the inner tube are automatically cured. The rarer kind of injury, such as bad cuts from glass bottles or other sources of severe damage, will not be closed by the 'Puncture Stop,' as the incision in such cases is too large for the granular particles to fill up, but such wounds must be patched with rubber in the ordinary way, with one additional precaution, namely, that the 'Puncture Stop' must be worked away from the seat of injury inside the tube before solution is applied to the surface of the tube. The patch will not adhere where the tube is moistened with the stop, which must be therefore removed, in the same way as it is necessary to remove the grey deposit from the air tube whenever an ordinary repair is executed. The 'Puncture Stop' is not an infallible preventive of all tire injuries, but is an automatic healer of a very large percentage of them."

In spite of both the praise and the blame, the puncture fluid held its own, and as many as forty different kinds appeared on the market. These were known by distinctive names, such as "Neverleak Tire Fluid," "Cyco," "Lightning Fluid," "Poppin Tire Healer," "Liquid Rubber," etc.

The compounds themselves were mostly of the glue and glycerine type. One, for instance, was made of glycerine, a farinaceous substance, a metallic oxide, and graphite; another consisted of glucose, flour, gum arabic, and water; another, of graphite, powdered asbestos, whiting, and glycerine; another, of dextrine, boracic acid, caramel, and water; another of glucose and glycerine and minute vegetable seeds; another of glycerine, fuller's earth, and plumbago; and so on.

The foregoing were all American inventions. Typical English formulas called in one case for sugar, starch, water, and coloring matter; in another for pyroxylin, dissolved in amyllic alcohol with the addition of glycerine or molasses; another for glue, glycerine, water, and chloroform; another for melted India-rubber, chalk, meal, and glycerine.

Three out of several Swiss liquids call for the following: (1) Ammoniac gum, resin, water, and glycerine; (2) silicate of soda, sugar, and dextrine; (3) gum galbanum, India-rubber, glycerine, and water.

It will be noted that almost all of these depend upon glycerine, as the viscous agent in stopping the puncture. Rubber manufacturers—that is, those who have made tires—have claimed that in any such compound, where a large amount of glycerine was present, the effect was to soften the inner coating of the tire. On the other hand, if glue was very abundant, it dried, forming a stiff crackling coat. As a matter of fact, few of the fluids that have been put on the market have been at all harmful to a good grade of rubber. They have, however, made it difficult for repairers to do good work many times. Those who have had the greatest cause of complaint, and who are sincerely opposed to puncture fluids of any and all kinds, are the manufacturers of reclaimed stock, made from pneumatic tires, as it has been impossible to put tires through a preliminary grinding until the fluid has been dissolved out, usually by a hot alkaline solution. The fact that the tires must be chopped in pieces by hand, and then treated to a bath before the beginning of the grinding for recovery, has turned these manufacturers into the strongest kind of opponents of any and all puncture fluids.

The patent upon which the Buffalo Specialty Co. base their claims for protection as being the original and only authorized manufacturers of puncture fluids for tires was issued March 9, 1897 (No. 578,551) to Charles A. Duryea, Peoria, Ill., and assigned to the Indiana Rubber and Insulated Wire Co. (Marion, Ind.), the original application being filed December 28, 1891. In the patent are seven claims, which cover a pneumatic tire, provided with a semi liquid or a free flowing sealing agent or cement, within its air chamber, designed to flow within the tube and by the movement of the tube adapted to be forced by escaping air into leaks or apertures, and to coagulate when exposed to external atmosphere, and thus seal the puncture. It will be seen that, if this patent is sustained, any semi liquid or cement used in the manner described is an infringement. It is due to other puncture fluid manufacturers to say, however, that in spite of the confidence that the Specialty company show, they do not seem to feel at all anxious.

The Buffalo company have brought suit against George W. Cole & Co. (New York) for infringement of patent. Other leading concerns who may be involved are Cox & Tingley, Glines Liquid Rubber Co., Biko Manufacturing Co., Arthur Boyce, Puncturoid Manufacturing Co., and Tireine Mfg. Co.

THE TROUBLESOME GOLF BALL.

"THERE are some things besides bicycle tires about which a good many rubber manufacturers are less enthusiastic now than before they began to put money in them," remarked a Man at Luncheon.

"For instance?"

"Well, golf balls."

"What is the matter with golf balls?" the writer asked.

"That is just what the rubber men want to know. There's no end of golf balls in use, and there must be money in them for somebody, but every man in the business one meets confesses that the profits haven't come his way. There was a fellow who came over here from England who knew all about golf balls—he had been employed in a great factory over there that makes submarine cables, golf balls, and everything else in Gutta-percha, and he was ready, for a consideration, to impart the experience of that great firm, especially in regard to golf balls. A lot of our manufacturers bit at the chance, and—well, they've got all the experience they cared to pay for."

"But there are American golf balls on the market—"

"Oh, yes. And in the end there will be some very good ones. But golf balls are about the most troublesome things in the world to make, and I doubt whether many balls have yet been made on this side of the water that can be sold at a profit. I can tell you of a house that is selling balls of its own manufacture, but I'll guarantee that every one they have in stock has cost them a dollar, and yet good imported balls retail at $3 a dozen."

"What seems to be the trouble, mostly?"

"Well, they haven't learned how to deal with Gutta-percha, is one thing. Not many people understand Gutta-percha, anyway. Of the half dozen great concerns abroad making golf balls, not more than two are making a first-class article, and yet all these concerns have long been in the business of using Gutta-percha. There is so little known about Gutta-percha on this side of the ocean that it is no wonder that nearly every rubber manufacturer who concludes to make a few golf balls as a side line makes a failure of it. There's the matter of shrinkage, for example. A beginner is liable to make a wrong calculation, and that will bring out his product over weight or under weight, and he will have to try all over again."

"But suppose some of them should secure the services of an expert in Gutta-percha; would that insure success?"

"Well, hardly. It is one thing to buy ten tons of good Gutta-percha and make it up into 20,000 dozen golf balls. But how is the rubber man going to sell them?"

"How does anybody sell golf balls?" the writer ventured.

"By knowing the sporting goods trade, and offering them in the right channel. Now one rubber manufacturer, with no connection in sporting goods lines, had 175,000 golf balls made, and what he is going to do with them, unless it is to make them over into finger cots, is more than I can tell."

"Another trouble about golf balls," continued the Man at Luncheon, "is that they're selling down to a point where there's no profit in them. Department stores buy them in quantities and sell the best imported sorts at cost, plus freight and duty. Sell them for leaders, and don't care for profits."

The writer's eye happened here to fall on an advertisement in a newspaper, which probably revealed more than it was meant to; at any rate this much could be figured out from it:

Cost of imported balls, per dozen	$1.92
Duty, 35 per cent	.672
Total cost (exclusive of freight, etc.)	$2.592

Considering that these balls were offered at $3 per dozen, it was plain that the dealer's profit could not be large. These, by the way, are the most popular balls in the market; what, then, can the makers of brands which have not yet made a reputation hope to get, in the way of prices?

"Then the rubber trade had better let golf balls alone," the writer was moved to remark.

"Not necessarily. Their use grows all the time. This will soon be the greatest country for golf in the world. According to the latest estimates there were 650 golf links in the United States and only 525 in Great Britain. It is estimated that before the end of 1899 there will be 1200 in the United States. And yet the sport is only in its infancy here. The total number of golfers in this country is already very large. I don't know how many balls are sold, but I do know that one house here sold last year 250,000 golf clubs, not counting club heads. No doubt in time two or three factories in the United States will take the lead in golf balls, just as has been the case with two concerns in England, and will be able to produce them at a profit. But they will never make money out of anything but the best Gutta-percha. No Balata, no Oxolin, no substitutes will go." With that the man across the table drew from his pocket an oxolin golf ball, scraped off a bit of the paint, and touched it with what remained of his match after lighting a cigar, and the ball started burning and continued to afford a steady flame until it was put out. It was plain that, if oxolin serves no other purpose, it can be used for candles or lamps.

"The golfing public get fooled sometimes, the same as other people," the Man at Luncheon went on. "Here's a list of balls retailing all the way from $3.50 to $5 a dozen—all made of the same material and at the same factory, but marketed by different houses, each using a different trade mark. Not many golfers can select balls by their appearance, nor yet by their playing qualities. Here's a ball three years old, on which the paint has become yellow. No doubt if a salesman were to whisper confidentially to almost any golf enthusiast that he had a stock of such balls the enthusiast would want the lot, right off. Yet a golf ball improves by seasoning only to a certain point; the longer it is kept after a year the more it deteriorates."

INDIA-RUBBER IN HONDURAS.

WHILE visiting New York recently Dr. Polycarpo Bonilla, former president of Honduras, was interviewed for *The Sun* on the resources of that republic, and expressed a generally favorable view of its condition and prospects. After discussing other products he said:

"But there is more money to be made in rubber in my country than in tobacco. Honduras is almost literally a forest of rubber trees, but there has been no attempt to develop the industry. We export a little rubber, but it is all in its natural state. If we had capital invested to develop the industry, there would be a great future for the country and much profit to the investor."

A recent visitor to THE INDIA RUBBER WORLD was Mr. A. H. Howland, who had just come from Honduras, where he is interested in a company in the mahogany trade. They are considering the question of taking up rubber, first gathering the native rubber on their concession, and gradually planting new rubber trees. Mr. Howland confirms Dr. Bonilla's reports of the abundance of rubber trees in Honduras, and explains the lack of interest in rubber there as only a part of the general slow progress of development in that country hitherto.

THE INDIA-RUBBER INDUSTRY ABROAD.

TRADE STAGNATION IN AUSTRIA-HUNGARY.

THE *Gummi-Zeitung* (Dresden) prints a letter from Vienna to the effect that, if one cannot speak of a general stagnation of the rubber industry of Austria-Hungary, it is nevertheless a fact that the principal branch—mechanical goods—has suffered a notable decline in consumption, and in consequence a material reduction in the manufacture must be reported. The production of machinery in Austria has not yet been developed to an important extent, and yearly many millions of guldens worth are imported. This has its effect upon the mechanical rubber branch, since in many cases the rubber goods required are imported in connection with the machinery. To this must be added the increasing number of substitutes for rubber packings. There is a growing use, too, of asbestos in competition with certain articles of rubber, and the rubber factories might do well to take up the production of asbestos goods.

The Austrian rubber factories that include other than mechanical goods in their production have not felt the stagnation to the same extent as those which make mechanical goods alone. This statement is proved by the fact that a certain factory which has been devoted exclusively to mechanical goods for a score of years, now offers its establishment for sale. All the factories in Austria-Hungary that are not able to make at least all the principal products of soft and hard rubber have a hard battle against the large stock companies, whose unlimited capital and extensive plants enable them to manufacture everything in rubber. Small factories, of which there are dozens in Austria-Hungary, confining themselves to specialties, are at a great disadvantage. Within the past five years, a factory in Austria which started in to make mechanical goods only, passed away shortly after its birth. A factory making a specialty of soft rubber toys fared likewise. A factory making rubber shoes only ceased to exist after a short career.

The Austrian manufacturers of rubber footwear have shown their ability to produce goods that will compete, in quality, with the best foreign goods brought into the country, but their expectations have not been realized so far as a reasonable profit is concerned. The pneumatic tire branch has shown more life this year than last, and standard goods meet ready sales at good prices. The business in rubber tires for vehicles is also flourishing. The business in rubber coats, waterproof stuffs, etc., is satisfactory. The competition of English manufacturers in the finer line of mackintoshes is still manifest, but in other lines, and in the export trade, the Austrian factories hold the field. There is an extensive business in rubber balls, but it is well known that this line is carried more or less as a "compulsory article." The hard rubber goods made in Austria meet a ready sale, but the competition of foreign manufacturers is strong. Rubber surgical goods are made only in a small way as yet, the trade being supplied chiefly through imports. Electrical supplies, so far as they are made in Austria, are in good demand, at satisfactory prices.

THE GARDEN HOSE TRADE IN GERMANY.

THE latest issue of the *Gummi-Zeitung* also notes the beginning of hot, dry weather in Germany, much to the gratification of dealers in garden hose, the trade in which had been retarded by long continued rains. It is stated that buyers of hose are beginning to appreciate that the best is the cheapest, so that a better quality is asked for than formerly. It is now thought that the current demand for hose will be important, owing to the fact that, on account of the dullness of the trade for the past few years, a large amount of the hose in the hands of users must now be in an unfit condition, while dealers' stocks are probably low.

It is noted that the uses of garden hose are increasing in number. It is used in some cases even in wet weather, on account of the growing practice of spraying plants with insecticides. Especially is this the case after mild winters, like the last one, which permitted even the smaller larvæ to withstand the elements. The more general introduction of waterworks, likewise, as is the case in America, is tending to a wider use of hose for spraying gardens and lawns. Hence garden hose has materially stimulated the inclination to amateur gardening. The opening up of suburbs to large as well as small cities and the introduction of detached buildings in the large cities, making it possible for each house to have a garden, by means of which the cities become encircled with villas, gardens, and parks, encourage an increase in the consumption of garden hose. A large field is also opened for it by the rise in the gardening industry. Professional gardening, until within a few years, was in Germany quite obscure, the more common vegetables and fruit being the limit. This is quite different now; gigantic tracts of land have been prepared for the cultivation of rare plants and costly flowers, and fruit raising has received a great impetus, so that gardening is becoming established more and more as a distinct art. Englishmen and Frenchmen are said to view with envy the German advance in this direction. All these gardening establishments are equipped with all modern improvements, hose being in incessant use. The modern gardener is no more in need of an army of water carriers and dozens of sprinkling cans, as hose, fed by its own reservoir and having access everywhere, does the work more satisfactorily, quicker, and cheaper.

Mention is made by our contemporary of one point which is yet too generally overlooked and treated lightly by dealers—the connection of steel tubes and screw nozzles, which is often done in such a way that the hose is rendered unfit from the beginning. Under such circumstances consumers and dealers think that it is a matter of inferior goods. Fair sized brass wire should be used in lacing the hose (as other metal will soon eat away the outer rubber layer), which should not be tighter than actually necessary to hold secure; too often small wire is used, which almost eats the hose at the beginning.

Another mistake is often made in using hose in the store as the base for all sorts of goods, gradually flattening it, which is very detrimental. Hose should always be well coiled up and be unincumbered, avoiding all squeezing and kinking, especially so of cheaper goods.

PLANNING FOR THE NEW GERMAN CABLE.

THE Deutsch-Atlantische Telegraphen-Aktiengesellschaft, Köln, has been registered in Germany with 20,000,000 marks capital, with privilege of increase to 50,000,000 marks, for acquiring telegraph and telephone concessions, and particularly for laying a submarine cable between the Azores and the United States. The company has been formed by Felten & Guilleaume (Mulheim-on-Rhine), in connection with German banking houses, and Karl Wilhelm Guilleaume is president. The Norddeutsche Seekabel-Aktiengesellschaft has also been

registered, at Cologne, with a capital of 2,000,000 marks, for the purpose of establishing works at Nordenham for the manufacture of submarine cables. The founders are the Deutsch-Atlantische company and Felten & Guilleaume. The Land- und Seekabelwerke-Aktiengesellschaft (Köln-Nippes), formerly the cable works department of Franz Clouth—Rheinische Gummiwaaren-Fabrik, are also interested in the new cable proposal, and Herr Clouth is one of the directors in the company first named above.

GERMAN TARIFF ON RUBBER SHOES.

THE report of the Harburg chamber of commerce for 1898 says that during the year there were employed in the local factory of the Vereinigte Gummiwaaren-Fabriken Harburg-Wien an average of 777 male and 655 female workers, in the manufacture of rubber shoes, balls, and technical and surgical goods. Business on the whole was unsatisfactory "This is to be traced," says the report, "to the unfavorable customs tariff, under which the rubber industry, and which enables the great industries of Russia and the United States to throw their overproduction at low prices on the German market." The following comparative table is published, showing the amount of the import duties (in marks per 100 kilograms), on different classes of goods, in the countries named:

Goods.	Germany.	Russia.	United States.
Rubber shoes	60	222	150
Rubber balls	60	79	120
Rubber combs	40	79	350
Technical goods	40	135	90
Rubber clothing (woolen)	130	1356	2400

It seems, therefore, according to the authors of the report, that the duties on rubber imported into Germany should be raised to at least 200 marks per 100 kilograms.

NEW RUBBER SHOE FACTORY IN CANADA.

THE Toronto Rubber Shoe Manufacturing Co., Limited, whose factory at Port Dalhousie was totally destroyed by fire last January, began the erection of a modern rubber factory at the same place early in May. The main factory building will be 230×50 feet, of brick, five stories high, with a boiler house 40×50 feet and a warehouse 140×50 feet, four stories in height. These buildings will be of mill construction, with steel girders and columns, and the plant will be lighted by electricity and fully protected by a sprinkler system. The company will take advantage of the splendid water privilege which they own at Port Dalhousie. The contracts for the rubber machinery were placed with the leading manufacturers in the United States, and everything in the new equipment will be from the latest and best patterns. The company intend to confine themselves entirely to the manufacture of rubber boots and shoes. As the stockholders are composed almost exclusively of the leading boot and shoe dealers in the Dominion, a good market is assured. They expect to have heavy goods manufactured in time to supply the orders for the late fall and winter trade.

INCREASE OF CAPITAL.

F. REDDAWAY & CO., LIMITED, mechanical rubber goods manufacturers, at Manchester, England, lately offered $300,000 in 4 per cent. debentures, at a premium of 2 per cent. This was part of a total authorized issue of $1,000,000, of which $500,000 was issued in 1897, the balance being reserved. The company reports profits as follows:

1895.	1896.	1897.	1898.
£17,440 6.3.	£27,626 13.6.	£24,238 5.11	£27,826 8.2.*

[* Partially estimated.]

The company have a Russian branch, at Moscow, capitalized at $350,000. The profits from this accruing to the home concern, for the first half of 1898, are reported at about $17,050.

RUBBER GOODS EXPORTS FROM NEW YORK.

THE exports from the port of New York during the five weeks ended May 30, classed as "India-rubber goods," amounted in value and were consigned as follows:

Great Britain	$33,205	Dutch Guiana	67
France	900	Brazil	681
Germany	5,520	Argentina	3,418
Austria-Hungary	126	Ecuador	172
Belgium	661	Colombia	282
Holland	125	Peru	203
Italy	4,129	Chile	675
Denmark	924	Venezuela	251
Norway and Sweden	194	Uruguay	56
Russia	53	Australia	1,790
Switzerland	120	New Zealand	1,833
Gibraltar	125	British East Indies	1,001
Spain	95	China	179
Mexico	3,005	Japan	466
Central America	1,205	British Africa	7,788
British Honduras	12	Other Africa	2,582
Cuba	5,680	British North America	127
Porto Rico	496		
British West Indies	103	Total, Apr 26–May 30	$78,498
Danish West Indies	42	Total, Mar 29–Apr 25	75,288
Dutch West Indies	12	Total, March 1–28	60,073
Haiti	80	Total, February 1–28	42,902
British Guiana	95		

The value of such goods exported from New York amounts usually to something less than 60 per cent. of the total for the United States. These statistics do not embrace dress shields, or clothes wringers, or such rubber goods as may have been embraced in exports classed as electrical material, bicycle material, dental material, and the like. There is further to be considered the large number of tires, the value of which is included in the exports of bicycles. It is probable, too, that some rubber may have been included in the exports classed during the five weeks covered by this report, as: Belting, $15,577; hose, $5389; packing, $2461; and valves, $11,882. Crude India-rubber was exported from New York to the value of $92,036; Gutta-percha, $931; and rubber scrap, $34,849. The exports of "India-rubber goods" to Cuba are shown in the table above; other exports to that country were: Belting, $1283; packing, $195; hose, $920; valves, $617. Some other items reported by the custom house were:

Druggists' sundries (British East Indies)	$ 500
Atomizers (British East Indies)	100
India-rubber stamp supplies (Brazil)	225
Electric cable (British West Indies)	3,379
Tires (New Zealand)	275
India-rubber composition (England)	200
India-rubber cement	80

Dress Shield Exports: London, $336; Liverpool, $1919; Southampton, $9414; Havre, $587; Antwerp, $2103; Hamburg, $9223; Vienna, $1198; Rotterdam, $640; Mexico, $158—total, $25,578.

Clothes Wringer Exports: Germany, $3393; Holland, $1918; Great Britain, $1384; Belgium, $235; Russia, $130; Norway, $560; Denmark, $184; Australia, $1083; New Zealand, $1876; British Africa, $29; Mexico, $5—total, $10,797.

Goods classed as Celluloid were exported from New York during the five weeks to the value of $5595.

* * *

A NEW classification of domestic exports of manufactures of India-rubber goes into effect on July 1, under a new schedule lately promulgated from Washington. Hitherto such exports have been classified as "Boots and Shoes" and "All Other." There is now to be added "Belting, Packing, and Hose," which will indicate, to a certain extent, the proportion of mechanical goods entering into our exports of rubber manufactures.

VIEWS OF A RUBBER PLANTER IN MEXICO.

*By M. H. Lewis.**

TO THE EDITOR OF THE INDIA RUBBER WORLD: In compliance with your request, I will cheerfully give you such information as I possess regarding rubber in this district, gleaned from four years' experience in planting 300,000 trees here at Dos Rios and carefully observing the rubber in other portions of this locality. I refer entirely to the *Castilloa elastica*, as no other variety grows here, either wild or cultivated. That it is indigenous to the country is proved by the number of trees found growing wild in the forest. I believe this to be the only variety in Mexico, and the same that is sometimes called "Panama" rubber. We recently secured 2000 seeds of Pará rubber, but only six plants sprouted, and these soon died. I understand that this rubber requires low, wet land, combined with an extreme degree of heat, only flourishing where man cannot well exist. *Castilloa elastica*, on the contrary, requires well drained land and climatic conditions similar to those for coffee, which are generally conducive to health and comfort. It will do well with a rainfall ranging anywhere between 50 and 150 inches per annum, and a temperature averaging between 70° and 85° F.

The republic of Mexico unquestionably contains thousands of acres of land possessing in a remarkable degree every requirement in the way of soil and climate to make it perfectly adapted to the successful cultivation of this valuable product; and to no portion of the republic does this apply more forcibly than the isthmus of Tehuantepec. "Tropical Mexico" is a large country, however, and contains bad land as well as good, and I would advise an inspection of lands by competent parties before closing a purchase. There are instances where large sums of money have been sunk in huge wastes, purchased simply because they were *cheap*, or in the belief that land worthless for any other purpose would grow rubber. There was never a greater mistake. *Castilloa elastica* does not necessarily require as rich ground, nor as much moisture, as does coffee, but it is fully as essential that the land be well drained, for "wet feet" are as injurious to one as to the other. I have seen young rubber apparently doing well upon land practically exhausted by tobacco; likewise on land heavy with clay, and again on soil consisting almost entirely of sand; but I have never yet seen it growing on *wet* land, or *old* trees bearing well on anything but what had been rich, friable, virgin forest land at the time the trees were put out.

Rubber cultivation is not a difficult undertaking and no great amount of experience or scientific education is necessary. Patience and a reasonable amount of common "horse-sense" are the chief requisites, after the necessary capital and proper lands have been provided. I would advise the "tenderfoot" to spend at least six months studying the successes and failures (particularly the latter) of some older planter before starting in on his enterprise, and to use his eyes rather than his ears.

Rubber seed for nursery purposes can be secured in large quantities in June and July, from several localities on the isthmus, at an average price of $1 per pound. It is extremely delicate and no time should be lost in transferring from trees to nursery, and great care exercised in its transportation. If allowed to get dry, the parchment will break, thereby preventing germination; if too wet, or allowed to heat, the seed will rot. The cost of raising one year old nursery plants is $15 per thousand. This includes the cost of clearing and preparing the ground, purchase, transportation, and planting of the seed, weeding until plants are pulled, pulling, trimming, counting, and bundling the plants. They cannot usually be bought, but when possible it is advisable for the beginner to buy his plants, thereby saving a year's time and avoiding all risk in connection with the nursery. No dependence can be placed on getting seedlings from the forest, nor are they desirable, on account of crooked trunks and roots.

There is a great diversity of opinion as to how the rubber shall be planted; whether under light or heavy shade, or with no shade at all; also at what distance apart the trees should be placed. We have planted ours from 16 to 18 feet apart each way, in among the coffee trees and under light shade. Our soil is very deep and rich and easily able to support both of these products, as well as that portion of the original forest left for shade. This means a saving of land and a doubling of its earning capacity. The same weeding serves for both products, and I believe that, by keeping the soil always moist by means of the combined shade of the forest trees and coffee plants, the life of the rubber tree will be incalculably extended, its yield of sap increased, and the quality enhanced, with no consequent detriment to either the coffee plants or their product. On the other hand, rubber set out in the sun grows faster and can be tapped earlier than that under shade, and for the first twelve or eighteen months "catch crops," such as corn, beans, and tobacco can be planted in among the trees, the profits therefrom offsetting the constant and heavy expense of keeping down a rank growth of grass and weeds.

The cost of clearing, rowing, staking, and planting rubber alone, without coffee, under forest shade, putting 150 plants to the acre, including the cost of the plants, is in this immediate locality $36 per acre, and it will cost $12 per acre each year for the following seven years to replant and weed, at the end of which time the trees should be ready to tap, having cost $120 per acre, or 80 cents each.

Planted in the sun, 15 feet apart each way, or 200 to the acre, the cost is $60, with an expense of $40 for the first year for replanting and weeding, and an average cost of $20 for weeding each year until the rubber is ready to tap—usually when six years old. The total cost would thus be $200 per acre, or $1 per tree, less any profit resulting from "catch crops."

All of the above figures are in Mexican silver, worth to-day 49½ cents United States currency. They include management and living expenses, but nothing for cost of land, buildings, interest on invested capital, etc. Field labor figured at 85 cents, silver—50 cents for wages and 35 cents for keep. Of course the cost of doing this work will naturally vary in different districts, but these figures will apply very accurately to most of the forest lands of the gulf slope.

Just what the yield would be from a six or eight year old rub-

* The writer of this article is the general manager of the Mexican Gulf Agricultural Co., with offices at Kansas City, Mo., and plantations in the state of Vera Cruz. He informs us that the figures of cost given in the article include the managing expenses—which is not always the case in estimates on this subject—in order to give persons not familiar with conditions in Mexico a fair knowledge of the true cost and amount of capital required for this class of investment. He deems it better, in writing a brief statement, to give an estimate including the cost of management, rather than go into a detailed explanation of the management and other costs.—THE EDITOR.

ber plantation, when properly planted, cultivated, and tapped, has yet to be demonstrated on the isthmus. None of the plantations owned by foreigners have attained that age, and those of the natives are poor criterions. They are rarely, if ever, weeded; the trees generally improperly tapped at irregular intervals, and frequently at the wrong time; and the sap invariably collected and cured in the crudest manner. No estimates are made of the crop, or the cost of harvesting it. However, by means of careful inquiries and a systematic tapping of selected trees of all ages throughout the different districts, it has been possible to arrive at a comparatively accurate knowledge of what can reasonably be expected. One-half pound of high grade, clean rubber can be counted upon with certainty from eight year old trees, and a half pound increase every year thereafter until the trees are yielding five pounds each. At present prices the planters net 80 cents per pound, silver. This means a profit of $80 per acre from eight year old plants, $400 per acre four years later, and $800 per acre when the trees are in full bearing, and this return should continue without any shrinkage for at least twenty-five years. These estimates are conservative in the extreme, and the prospective purchaser can rest assured of seeing them fully realized, with a possibility of their being doubled.

The isthmus rubber, both wild and cultivated, has been favorably passed upon by experts in New York, London, and Hamburg, and a great deal of it sold in American and European ports at prices comparing well with the best rubber on the market, taking into consideration its crude preparation. As in the case of coffee, badly cured and dirty rubber is subject to a heavy discount, out of proportion to its intrinsic value.

Castilloa elastica, on the isthmus at least, has no enemies in the way of insects or diseases. There is no export duty and the Mexican government provides every protection to life and property. Therefore, taking everything into consideration, it is my firm conviction that the cultivation of rubber on the isthmus of Tehuantepec is an extremely safe and highly profitable investment.

Dos Rios, Vera Cruz, Mexico, June 3, 1899.

* * *

IN a separate communication Mr. Lewis, the writer of the preceding article, says: "At the present time the Mexican Gulf Agricultural Co. have on their property, known as the 'Dos Rios' plantation, 100,000 rubber trees four years old, 100,000 three years old, 200,000 two years old, and propose putting out 200,000 per annum for the next three years, which will complete a total of 1,000,000 trees. The Mexican Tropical Planters' Co. (an allied company) expect to put out on their own plantations 100,000 rubber trees this year, and a similar number for their investors, for whom they are doing work in that vicinity."

* * *

MR. J. C. HARVEY, manager of the Trinidad Rubber Co., a California corporation, writes to THE INDIA RUBBER WORLD from their "Buena Ventura" plantation, at San Juan Evangelista, near the Tehuantepec railroad and the Trinidad river, state of Vera Cruz, Mexico:

"I have a good many inquiries from eastern parties, regarding rubber cultivation, prospects, etc. Regarding our own work here, I have reason to feel well satisfied. Our labor houses are all completed; roads—or rather trails—constructed; land cleared for corn for the labor on the place—and 25 to 35 men consume a large quantity, as it is the staple article of consumption. As we advance into the jungle we find a good many scattering trees of *Castilloa elastica*, from 3 inches in diameter up to 14 inches. Their presence, of course, does away with any doubt as to the adaptability of the lands for their culture. Seed beds made last year in the full open have made a fine stand of young trees; many thousands ranging from 18 inches to 3 feet in height, in splendid condition for transplanting in June. Such trees are only nine months from seed. I find it will pay to screen all seed, rejecting small ones. The selected seeds make the best trees in a given time. The worst vicissitude that native trees have to contend with is the enormous growth of *bejucos*, or wild vines, which climb up in the forest and form a mat over the tops of the rubber trees, either causing them to rot or checking the expansion of the heads. Here is where cultivation will come in—keeping down the vines and undergrowth. A few wild trees in the forest, much matted with vines last year, were cleared at that time. This season the improvement is very marked, nice new branches forming, with a good deal of seed, and a very perceptible increase in girth, especially evident in the smaller trees. Two years residence justifies the statement that a white man can live here with a degree of comfort as far as climate is concerned, not to be approached by most tropical countries in like latitude, and at the same elevation—that is to say, about 800 feet above sea level."*

* * *

MR. CARLOS R. L. FINDLAY, of the "Finca Palma Redonda," at San Juan Evangelista, Mexico, writes to THE INDIA RUBBER WORLD that a great many individuals and companies are planting rubber (*Castilloa elastica*) in the state of Vera Cruz. He is not acquainted, however, with any who are planting rubber alone; it is usually in connection with coffee. Mr. Findlay has planted a few specimens of Ceará rubber lately. He supplies the names of the following planters in the basin of the San Juan river, having their postoffice address at San Juan Evangelista:

Bailey & Dorman,	Eugene Griffin,	W. R. White,
G. B. Mann,	E. J. Ovington, Jr.,	J. C. Harvey,
R. A. Chadwick,	Henry Lane,	Edward Trippe,
Dr. W. L. Hall,	Clemente Allende,	Frederick Alley,
David Davidson,	Charles Krumpas,	Raphael Demorest,
	C. R. L. Findlay.	

It is reported that a great deal of rubber is planted, and more is to be planted, on the Coatzacoalcas river and on its tributaries.

* * *

THE Oaxaca Coffee Culture Co., owners of the "San Luis" plantation in the state of Oaxaca, Mexico, advise THE INDIA RUBBER WORLD that they recently finished transplanting 10,000 young rubber trees from their nursery, besides selling a large number of seedlings to other planters on the isthmus.

* * *

A LETTER to THE INDIA RUBBER WORLD from John Miller, general manager of the "Hacienda de Doxie," Jaltipan, Vera Cruz, states that F. O. Harriman, of that place, "is figuring on putting in a rubber nursery of at least 1,000,000 plants for sale this coming season." Mr. Harriman contributed to THE INDIA RUBBER WORLD of August 15, 1893, a valuable article on "Rubber Planting on the Isthmus of Tehuantepec," and has since been interested in the planting industry.

* * *

HILARIO CUEVAS, a large planter in the state of Jalisco, has applied to the federal government for 20,000 hectares (=49,400 acres) of public land, upon which to plant coffee and rubber. He hopes to organize a $2,000,000 company to operate the concession.——*El Correo de Sotavento*, published at Tlacotalpam, in the state of Vera Cruz, is informed that various enterprising local merchants are forming a large stock company, to exploit rubber, which flourishes on the fertile coast of Sotavento.

* Interesting contributions by Mr. Harvey have been published in THE INDIA RUBBER WORLD as follows:

"Notes on Rubber Cultivation in Mexico." October 1, 1898.

"Can *Castilloa* Rubber be Cultivated Profitably?" June 1, 1899.

ANSWERS TO CORRESPONDENTS.

TO THE EDITOR OF THE INDIA RUBBER WORLD: Do you know of any concerns making rubber goods in Mexico? Is Mexico, in your opinion, a good field for an investment in an average sized rubber factory? Are Mexican rubbers classed in the market as "Centrals"?

THERE is at present no factory making rubber goods in Mexico, and it is a question if it would be a good field for such investment. Most of the goods that go there are very cheap, and at present they are not very large buyers anyhow. Every now and then the matter of a concession from the Mexican government and increase of Mexican duties on rubber goods is talked by some rubber man in the United States, but so far those who have looked into it have been unable to see much money in it. Mexican rubbers are quoted as "Centrals."—THE EDITOR.

TO THE EDITOR OF THE INDIA RUBBER WORLD: In your issue of May 1 (page 210) you mention the use of animal charcoal for deodorizing a rubber compound. Can you inform me whether crude rubber can be deodorized in the same manner; or if you know of any compound that will act as a deodorizer?

WE have never heard of crude rubber being deodorized by animal charcoal, and doubt if it would work. A better plan is to immerse the rubber in a weak solution of ammonia and water. This is sometimes done by boring a hole in the casks, in which some of the lower grades of rubber are shipped, and pouring the solution in through the holes and letting it stand for awhile. You will find in our book on "Crude Rubber and Compounding Ingredients" a variety of hints regarding the treatment of rubber to remove the smell, which is sometimes done by deodorizing after vulcanization, and sometimes by mixing ingredients in the compound.—THE EDITOR.

TO THE EDITOR OF THE INDIA RUBBER WORLD: In the *Scientific American Supplement* of May 6 (page 19523) we notice that a German has patented in this country a new "artificial rubber" of which we have seen no mention in your journal. Please give any information you may have of it, as well as your opinion of the article, about which we have some doubts.

THE inventor professes to have succeeded in preparing from glue or gelatine or glycerine, with the addition of other substances, a material which as regards elasticity comes very near rubber, and in some respects is even more elastic, although it is admitted to be somewhat less capable of resisting a tensional strain. The compound is obtained by adding to a hot molten mass of glue or gelatine a sulphuretted hydrocarbon, such as ichthyol oil. This "substitute" appears to be made from an old formula, with perhaps a slight change in the last part of the manipulation. It is almost impossible to tell how valuable this may be without seeing the result produced, but the chances are that it is of little value.—THE EDITOR.

TO THE EDITOR OF THE INDIA RUBBER WORLD: Please tell me just what is the dividing line between "old" and "new" Pará rubber. How long does it take a lot of rubber to become "old?" And is the practice of the trade uniform, as between "old" and "new?"

A MEMBER of the trade to whom this question was submitted, replied: "I call rubber old that has been in store in New York six to eight months. This storage gives a chance for the moisture in the rubber to evaporate. The term 'old rubber' has been very much abused in the rubber trade. Really, rubber to be old ought to be in store eight months to a year. Rubber that has been in store in Pará for three or four months can also be classed as 'old,' since that climate dries out the moisture very quickly, and it is the absence of this moisture and sap that really makes rubber 'old.' Old rubber, as a rule, is classed on sample, which speaks for itself."—THE EDITOR.

TO THE EDITOR OF THE INDIA RUBBER WORLD: Can you inform me whether a rubber cement improves by being barrelled and kept in stock, or whether it is best to ship it as soon as it is manufactured? What I refer to principally is the cement for cementing down channels in a shoe factory.

SUCH cement as you describe should keep in good condition for years.—THE EDITOR.

TO THE EDITOR OF THE INDIA RUBBER WORLD: We wish to procure a machine for cementing together two thicknesses of goods. We believe the machine would be called a doubling machine. Can you give us the names of manufacturers of such machines?

Two machines would be needed for the process you describe: a knife spreader for coating the cement on the cloth, and a doubling machine for pressing the two fabrics together. Both of these machines are to be found described in the advertising pages of THE INDIA RUBBER WORLD.—THE EDITOR.

TO THE EDITOR OF THE INDIA RUBBER WORLD: We have a very good account of rubber play-balls of European manufacture that has been offered to us. We do not know whether they can be imported to good advantage. Can you enlighten us on this topic?

IT would be almost hopeless for a foreign manufacturer at present to try to capture the American market. The goods are manufactured here on a very close margin, the business is not a growing one, nor is it a very large one. While the present tariff is in effect, it would not seem worth venturing on.—THE EDITOR.

TO THE EDITOR OF THE INDIA RUBBER WORLD: Do you issue a directory of manufacturers of India-rubber goods in the United States? If so, please send us one. Let us know the price and we will remit you at once on receipt.

THIS letter come from Holland. No directory of the rubber trade is issued, and, as a matter of fact, none is necessary, since THE INDIA RUBBER WORLD in its advertising and reading pages very thoroughly reflects the active element in the trade. —THE EDITOR.

TO THE EDITOR OF THE INDIA RUBBER WORLD: Where can we get the names of the principal exporters of crude rubber in the different ports of South America?

TURN to the tables of monthly exports from Pará, published regularly on the last page of reading matter in THE INDIA RUBBER WORLD. All of these are established at Pará; some of them have branch houses at Manáos, about a thousand miles up the Amazon. They are practically the only exporters of Pará rubber, including Peruvian and Bolivian sorts. Rubber exported from other South American ports—"Centrals" from Guayaquil, Cartagena, etc., "Ceará" from Ceará, and so on—is shipped in comparatively small amounts, through general export houses.—THE EDITOR.

RECENT TRADE PUBLICATIONS.

RUBBER SUNDRIES (ARTICULOS DE CAUCHO), 1899. PARKER, Stearns & Sutton, New York, U. S. A. [Cloth. 6½″×9¾″. 100 pp.]

THIS is a particularly serviceable catalogue. The plan upon which it has been gotten up is the liberal use of full page illustrations, which are of a high order of excellence, opposite to which is placed suitable descriptive matter, concisely written and printed in a style to render reference to the catalogue easy and convenient. Prices are given. An unusual feature of the catalogue is the reprinting of all the descriptive matter in Spanish, underneath the English text, this house having made an active beginning in the export trade to the Spanish speaking countries. This catalogue is handsome in appearance both inside and outside, and forms a volume which druggists will be certain to value and preserve for reference.

ILLUSTRATED PRICE LIST. 1899-1900. BOSTON RUBBER SHOE CO., Boston. [Paper. 3¾″×6″. 48 pp.]

SPECIAL CATALOGUE FOR JOBBERS. 1899-1900. BOSTON RUBBER Shoe Co., Boston. [Paper. 8″×10″. 48 pp.]

THESE publications are gotten up with the completeness and in the attractive style which the customers of this long established house have become accustomed to expect. They reflect much credit upon Mr. George L. Richards, who designs the company's advertising literature. The illustrations are the best that the trade has yet seen, and the typographical effect is above criticism.

BOOTS AND SHOES. SEASON 1899-1900. GOODYEAR'S INDIA-RUBBER Glove Manufacturing Co., New York. [Paper. 3¾″×6⅛″. 60 pp.]

THIS long-established factory catalogues a somewhat smaller number of styles of footwear than some of the other companies, yet offers a sufficient variety to allow for filling the demands of practically every class of trade in high class goods. Some of the specialties are a special quality of firemen's boots and a button boot, with cloth top, cut higher than in other makes. A line of tennis shoes is also listed. The styles are all well illustrated. Prices are not given.

CATALOGUE AND PRICE LIST, 1899-1900. RUBBER BOOTS AND Shoes, Manufactured by Lycoming Rubber Co., Williamsport, Pa. [Paper. 3⅛″×6⅛″. 56 pp.]

CATALOGUE AND PRICE LIST OF THE MEYER RUBBER CO. BRAND and the Jersey Co. Brand of Rubber Boots and Shoes Manufactured by United States Rubber Co., for 1899-1900, New Brunswick, N. J. [Paper. 3⅜″×6⅛″. 48 pp.]

CATALOGUE AND PRICE LIST OF THE JERSEY CO. BRAND OF Rubber Boots and Shoes, 1899-1900. United States Rubber Co., New Brunswick, N. J. [Paper. 3¼″×6″. 16 pp.]

THESE, in connection with the catalogues described on page 240 of the last INDIA RUBBER WORLD, complete the collection of catalogues and lists of United States Rubber Co. catalogues for this season—a very full and attractive presentation of their widely varied output of rubber footwear. The first "Meyer" goods were made in 1842. The "Jersey" goods are offered as "seconds," with the claim that they are equal to many "firsts." The Lycoming catalogue includes the "Keystone" brand.

PRICE LIST. PROVIDENCE RUBBER SHOE CO., UNION SHOE CO., Manufacturers India-Rubber Shoes. Providence, R. I. [Paper. 3⅛″×6⅛″. 40 pp.]

THE production of this factory, which perpetuates the name of Bourn in the rubber industry from 1840 to 1899, is confined to the items of rubber footwear in the greatest demand. The illustrations given are from photographs of the boots and shoes described.

PRICE LIST AND CATALOGUE. RUBBER BOOTS AND SHOES MADE by the Gutta-Percha and Rubber Manufacturing Co. of Toronto, Limited, Toronto, Ont. [Paper. 4″×6⅛″. 60 pp.]

THESE are the goods made under the "Maltese Cross" brand—a trade mark which is widely known also in connection with the same company's mechanical rubber goods. Prices are subject to change without notice, and settlements are to be made monthly. The second grade goods of this company are marked with the "Lion" brand.

CATALOGUE. THE "STUB PROOF" RUBBER. THE J. B. KING CO., Limited, Montreal, Toronto, and Winnipeg, Canada. [Paper. 3⅜″×5⅞″. 20 pp.]

THE goods described here include some peculiar features, intended to render them more durable than ordinary rubber boots and shoes. Special attention is called to the readiness with which they can be repaired by any cobbler. "Stub proof" soles and heels of rubber are sold separately, to be used in repair work, together with a specially prepared rubber cement, of great strength, for applying them. These goods, handled exclusively by the firm named above, are made for them by the Gutta-Percha and Rubber Manufacturing Co. of Toronto, Limited. The same firm handle the regular "Maltese Cross" brand of footwear, made by the Gutta-Percha company.

RUBBER CATALOGUES FROM THE NORTHWEST.

THE Goodyear Rubber Co.'s St. Paul branch send us a package of their most recent illustrated catalogues and price lists, which form about the most complete collection of trade publications issued by any one rubber house in this country. The manager of this house, Mr. James Suydam, takes special interest in the getting up of these catalogues, and is to be congratulated upon the success which has been attained. The titles of the catalogues just received are as follows, indicating a wide range of goods handled:

No. 160. Lawn Hose, Lawn Goods, Plumbers' Supplies. 8pp.
No. 163. Druggists' and Fancy Goods. 40 pp.
No. 164. Fire Hose, Etc. 12 pp.
No. 165. Thresher Belting and Threshermen's Supplies. 8 pp.
No. 166. Bicycle Sundries. 12 pp.
No. 167. Boots and Shoes. 84 pp.
No. 169. Mackintoshes, Rubber and Oil Clothing, Etc. 32 pp.

The trade in the northwest calls for a great variety of goods. In footwear, for instance, the range is between the light weights for city wear and lumbermen's and farmers' boots, and so with mackintoshes and rubber clothing, etc. The fact that a separate catalogue for threshermen's supplies is deemed necessary is an illustration of how the trade in the section of which St. Paul is the center differs from that of points farther east. This trade is increasing steadily.

CATALOGUES RECEIVED.

THE Bridgeport Gun Implement Co., New York.=Golf Catalogue. 48 pp.

Excelsior Supply Co., Chicago.=Catalogue No. 15—Everything for Bicycle Builders and Dealers. 96 pp.

Joseph Dixon Crucible Co., Jersey City, N. J.=Dixon's Teachers' Note Book [describing pencils.] 32 pp.

Peoria Rubber and Manufacturing Co., Peoria, Ill.=Peoria Rubber Vehicle Tires. 8pp.

The Franklin Rubber Co. (Fuller, Leonard & Small), Boston.=Useful Information for Women [describing Dr. F. Wilhoft's ladies' syringe]. 12 pp.

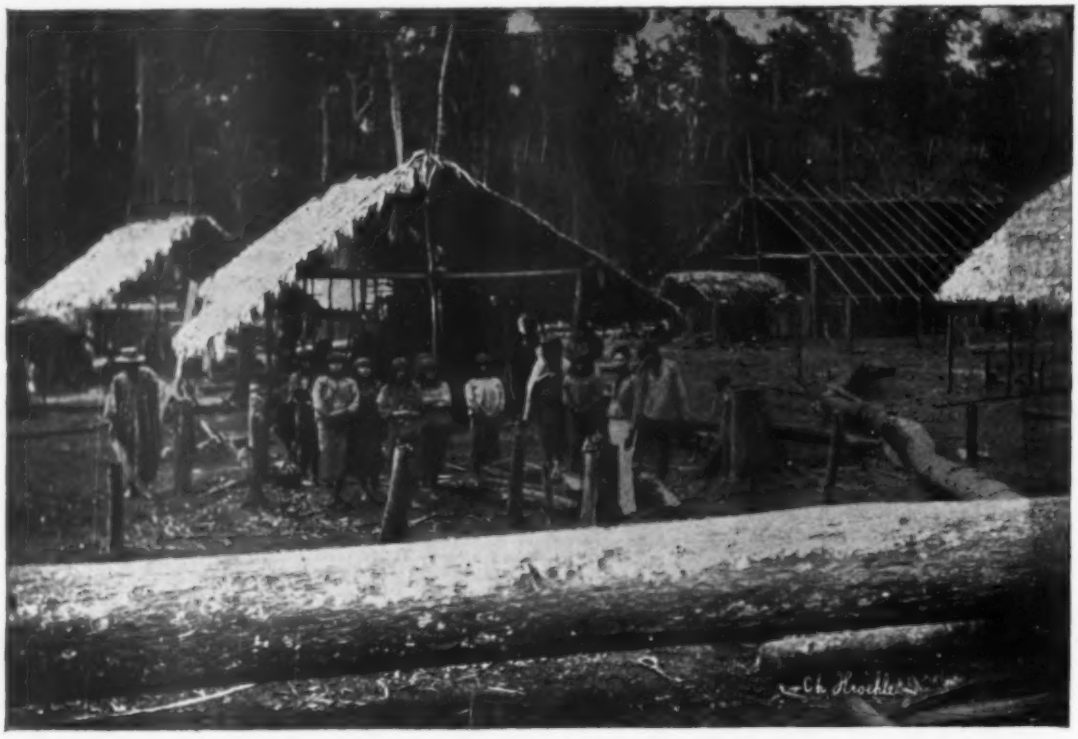
Cable Rubber Co., Boston.=Carriage Goods. 4 pp.

Victor Sporting Goods Co., Springfield, Mass.=1899 Spring and Summer Catalog of Victor Athletic Goods. 56 pp.

The Victor Rubber Co., Springfield, Ohio=List Price [of] Pneumatic Vehicle Tires. 4 pp.

Boston Belting Co., Boston=[Fire Hose Circular.] 4 pp.

Mishawaka Felt Boot and Shoe Co., Mishawaka, Ind.=Mishawaka Felt Shoes and Slippers, Felt and Knit Boots. 16 pp.



IN A CAMP OF RUBBER GATHERERS ON THE AMAZON.

[From the *Buffalo Illustrated Courier*. Copyrighted, 1899, by George E. Matthews & Co.]

BAD SHOWING OF A "RUBBER ESTATE."

AT an extraordinary general meeting of the Rubber Estates of Pará, Limited, in London, on June 8, the chairman, in explaining why no dividends had been paid, said that their original expectation was that they should be in possession of the estates by April, 1898, but this was rendered impossible by the failure of the public to subscribe for their shares to a sufficient extent. The promoters paid the vendors of the estate £2000 for an extension of time until September 10, 1898, when the contract for the purchase of the estates was completed. By that time it was too late to arrange for gathering any rubber in that season; besides, the vendors were already gathering the crop. The company gained full possession on March 1, 1899, and have since had some rubber gathered, though it is unusual to send men into the forests in the wet season. By the end of May the company had received 7¼ tons of rubber, and about 1½ tons remained at Pará awaiting shipment. The chairman said that there were then about 750 men at work on the estates, and he was confident that the year's working would show a profit, though he did not wish to make any definite promises. This is a company "floated" in London early last year, with £350,000 (=$1,750,000) capital, to purchase the estates of the Visconde de Sao Domingos, on the island of Marajó. THE INDIA RUBBER WORLD was advised from Pará at the time that the sale of the estate had been effected by the Visconde at about £50,000 (one half in cash and one half in stock), or about 69 cents per acre. The number of mature rubber trees was then stated at over 1,300,000 but the chairman, at the meeting referred to above, admitted that "the actual number of trees" was "more or less an unknown quantity."

A RUBBER CAMP ON THE AMAZON.

THE illustration on this page has been made from a photograph taken by Frank G. Carpenter, a well-known newspaper correspondent, during a recent visit to the Amazon, where he ventured into a rubber camp and experimented in the work of rubber gathering until the smoke from the palm nuts had caused him to shed almost as many tears as there were drops in the small quantity of rubber sap he collected and cured. His story is that he spent $100 on his excursion into the forest and made an ounce of rubber.

RUBBER TIRES INSULATED THE CARRIAGE.

DURING a recent severe storm in Milwaukee, Wis., a bolt of lightning struck a carriage containing several persons, but beyond the fright caused by the sharp glare and the running away of the horses, no one was injured. A subsequent examination of the conveyance showed that the bolt struck the shaft squarely in the center, changed its course to the iron work, and was there lost. The vehicle was equipped with rubber tires and around the felloe of one of the wheels evidences of the lightning are noticeable. The electric fluid evidently made the circuit of the wheel until the cement was melted and the tire released, permitting the electricity to escape. What became of the tire it is impossible to say, for it was stripped from the wheel as neatly as anything could possibly be. Electricians who examined the vehicle remark upon the incident and say that but for the rubber tires there might have been serious consequences to the occupants. The incident is likely to give the use of rubber tires a new impetus in Milwaukee.

RANDOM NOTES FROM PARA.

TO THE EDITOR OF THE INDIA RUBBER WORLD: The Commercial Association of Pará is very strongly opposed to the proposal made by Governor Carvalho, to the congress of this state, of another increase in the export tax on rubber. A spirited article in one of the newspapers, by Senhor J. Lucio d'Azevedo, asks whether it is the object of the governor of Pará to play the game of our neighboring state of Amazonas. For many years, he says, our neighbors have worked with praiseworthy tenacity and intelligence to promote what they call their "economical independence" from Pará, and now they are realizing their ambition. While their income was still inconsiderable they began to subsidize foreign navigation, until the increase of traffic made this no longer necessary. Then they adopted a more favorable rate of export duty on exports shipped direct from Manáos, and in other ways worked to create obstacles to exports from Pará. This policy, declares Senhor d'Azevedo, will receive substantial support if the increase of taxation proposed by the governor of Pará is adopted.

Only in reality, says this writer, will the state of Pará be benefited by the increased tax. He presents statistics to show that the production of rubber in the state of Pará has reached its highest limit and has begun to decline, while in the state of Amazonas it is increasing rapidly. Formerly all this production paid export duties at Pará. But the revenues of Pará have suffered by the increase in the volume of exports direct from Manáos. In 1886-87 less than 13 per cent. of the total rubber production of the Amazon country was exported direct from Manáos. In this fiscal year, now nearly ended, 35½ per cent. has been exported direct. To put it another way, the exports from Manáos have increased 375 per cent. in thirteen years, while the exports from Pará (not including the shipments direct from up the river) have increased less than 28 per cent. "Rubber is the principal source of wealth of our state; this does not increase; what comes to us from the outside is disappearing; this is the situation."

PRODUCTION OF RUBBER IN PARÁ AND AMAZONAS (INCLUDING PERU AND BOLIVIA) IN TONS.

Years.	Pará.	Amazonas.
1889-90	7,029	7,425
1890-91	7,480	8,360
1891-92	7,988	9,188
1892-93	8,176	9,733
1893-94	8,107	11,329
1894-95	8,138	10,031
1895-96	8,652	10,625
1896-97	8,844	11,432
1897-98	8,919	11,581
1898-99	8,166	12,607

When the *aviadores* (the supply houses), with constantly increasing interests up the river, find it to their interest to move from Pará into the neighboring state, the importers and exporters of rubber will have to move with them, if their business is not to fall off. Next the prosperity of Pará, recognized now in the manifestations of social life, will follow the flight of capital and the inevitable withdrawal of activity in industrial and commercial lines. This condition would have become more evident ere this, says Senhor d'Azevedo, but for the frequent interruptions to cable communication between Pará and Manáos, which has at times interfered with traffic in the latter city.

The United States gunboat *Wilmington* returned on here April 28, going hence to Maranham and Ceará. She was not well received in upper Amazonian waters, probably owing to silly reports set afloat that the United States, not content with Cuba and the Philippines, had fixed an eye upon these rich rubber regions. From Manáos the gunboat proceeded upstream to Iquitos; on their return they were not noticed, nor their salute of 21 guns at Tabatinga noticed. At Manáos the pilots were forbidden to pilot the boat to any part of the great river or any branch thereof, so the trip to Pará was made without any pilot.

Next year, in commemoration of the four hundredth anniversary of the discovery of Brazil, a book will be published, prepared by some of the most eminent writers in the republic, and devoted to a description of the country and its resources. The Baron of Marajó, mentioned frequently in this correspondence, will write on the geography of Brazil; Senhor J. Lucio d'Azevedo, of the Pará rubber trade, on "the extractive industry," which includes rubber; etc.

A telegram from Rio de Janeiro reports a lengthy interview between a Russian diplomat and a federal senator from Pará regarding the exportation of rubber from this port. Russia, for some time past, has shown a disposition to encourage a direct trade in Pará rubber, instead of through English and French ports, as at present.

The population of the state of Ceará is constantly being decreased by emigration to Pará and Amazonas.

The Madeira river is higher than at any time since 1891, causing much apprehension. GRAO PARA.

Pará, Brazil, June 1, 1899.

THE GROWTH OF MANAOS.

"THERE is little to be said of the town of Manáos," wrote the great naturalist Agassiz (in "A Journey in Brazil"), in 1865. "It consists of a small collection of houses, half of which seem going to decay, and indeed one can hardly help smiling at the tumble down edifices dignified by the name of public buildings." While admitting the commanding position of the town, and the natural wealth of the country, he regarded the day far distant when steamers on the Amazon would "ply between its ports as those on the Mississippi."

Not long after Agassiz's visit to the Amazon the navigation of that river was opened to the world, and by the time THE INDIA RUBBER WORLD was started, ten years ago, Manáos had become an important trading center. In some of the early numbers of this journal articles were published regarding the possibility that the inland city would become a rival of Pará as a rubber mart. Already many steamers laden with rubber for New York and European ports start on their voyages not from Pará, but from Manáos. Some of them, indeed, sail from Iquitos, in Peru, a thousand miles still further up the Amazon.

Frank G. Carpenter, a newspaper correspondent, recently wrote from Manáos that he had arrived there on an ocean steamer from New York, and found in the harbor other steamers from Lisbon, Liverpool, and Hamburg. He saw many fine buildings, public and private; daily newspapers, electric lights, an electric street railway in course of construction, a telephone exchange, and stores with stocks of goods valued at hundreds of thousands of dollars. The population of the city is 30,000, and the revenue from the trade of the port is large.

OPENINGS FOR ELEVATOR BELTS.

THE first contract in the construction of the largest grain elevator in the world has been let by the Great Northern railway. It is to be located at West Superior, Wis., will cost over $2,000,000, and is to have a capacity of 6,500,000 bushels, or 2,500,000 bushels more than the largest existing elevator. Max Toltz, the company's bridge engineer, at St. Paul, Minn., will have charge of the bids for the rubber belting required.

The contract for the construction of the new elevator of the Des Moines Elevator Co. (Des Moines, Iowa) has been let to D. A. Robinson, of Minneapolis, Minn. It will have a capacity to permit of the handling of 100 cars of grain per day.

The Chesapeake and Ohio Railway Co. are pushing work on the foundation for a new 1,000,000 bushel elevator at Newport News, Va.

RECENT RUBBER PATENTS.

A LIST follows of United States patents granted recently for inventions involving applications of India-rubber, or in relation thereto. Copies of specifications may be ordered through the office of this journal at 10 cents each:

ISSUED MAY 2, 1899.

623,982. Gasket for Steam Boilers and Coupling Therefor. Arthur W. Chesterton, Boston.

624,081. Process of Producing Artificial Asphalt. Duncan W. Peck, Syracuse, N. Y.

624,082. Process of Producing Artificial Asphalt. Duncan W. Peck, Syracuse, N. Y.

624,207. Tip for Crutches, Canes, etc. John S. Hawley, Jr., New York city.

624,314. Tire for Wheels. John J. Farrar, Rapid City, S. D., assignor of one half to John B. Henry, same place.

ISSUED MAY 9, 1899.

624,521. Cement. Charles Myers, Akron, Ohio, assignor, by direct and mesne assignments, to Michael J. Murphy, same place, and H. Rosenbaum, Cincinnati, Ohio.

624,522. Cement. Charles Myers, Akron, Ohio, assignor, by direct and mesne assignments, to Michael J. Murphy, same place, and H. Rosenbaum, Cincinnati, Ohio.

624,545. Device for Promoting Growth of Hair. Claude A. U. Rosell, New York city, assignor to the Capillary Chalice Co., same place.

624,763. Wheel Rim and Tire. Thomas Downing, Minneapolis, Minn.

624,859. Nipple for Nursing Bottles. Jacob Pfeifer, Akron, Ohio.

ISSUED MAY 16, 1899.

624,940. Rubber Tired Wheel. Frederick W. Huestis, Boston.

624,950. Vehicle Wheel. Frank Latimer, Huntley, Ill.

624,992. Rubber Tire for Vehicle Wheels. James A. Swinehart, Akron, Ohio.

625,011. Machine for Washing Hose. Joseph Askins, Ridgefield, N. H., assignor to the New York Nozzle Co., Orange, N. J., and New York city.

625,030. Process of Making Cloth Waterproof. Silas J. Harwood, Dorset, Vt., assignor of one-tenth to George L. Woodcock, Manchester, Vt.

625,052. Pneumatic Tire. John W. McDougall, Napier, New Zealand.

625,061. Safety-Fastener for Dress-Shields. Grace Roberts, New York city.

625,062. Dress-Shield and Fastener Therefor. Grace Roberts, New York, N. Y. [Original application filed February 19, 1898. Divided and this application filed August 1, 1898.]

ISSUED MAY 23, 1899.

625,313. Uninflammable Nitrocellulose Product. Lucien L. Bethisy, Paris, France.

625,331. Knit Boot. Ryan Heaton, Sandy Hook, Conn., assignor to the United States Rubber Co.

625,407. Leather Tire for Wheels. John Muir, Beith, Scotland.

625,528. Rubber Tire Equipment for Vehicle Wheels. James F. Winchell, Springfield, Ohio.

ISSUED MAY 30, 1899.

625,897. Cushion Heel. Humphrey O'Sullivan, Lowell, Mass., assignor to O'Sullivan Brothers, same place.

626,049. Machine for Making Hose. Frank H. Brewster, Derby, Conn., assignor to the Birmingham Iron Foundry Co., same place.

626,069. Stopper for Water-Bags. Charles E. Longden, New Haven, Conn., assignor to the Seamless Rubber Co., same place.

626,091. Soft Tread Horseshoe. William H. Peter and Harry A. Keigwin, Washington, D. C.

626,092. Rubber Compound. Joseph C. Petmecky, Austin, Texas, assignor to Joseph Gales Petmecky and Howard Mallory Finch, same place.

DESIGN PATENTS.

30,731. Horseshoe Pad. Richard Whitaker, New Brunswick, N. J., assignor to the Neverslip Manufacturing Co., same place. Issued May 9, 1899; term, seven years.

30,761. Nipple for Nursing Bottles, etc. Christian William Meinecke, Jersey City, N. J. Issued May 16, 1899; term, fourteen years.

30,823. Wheel Tire. John A. Blaurock, New York city. Issued May 16, 1899; term, fourteen years.

30,883. Rubber-Dam Clamp. Edward N. La Veine, Kansas City, Mo. Issued May 30, 1899; term, seven years.

30,884. Cushion for Hand Stamps. John A. Heany, Philadelphia, assignor of one-half to William L. Teter, same place. Issued May 30, 1899; term, fourteen years.

30,926. Heel for Boots or Shoes. Abraham Sydeman, Boston. Issued May 30, 1899; term, seven years.

THE ENGLISH PATENT RECORD.

APPLICATIONS FOR PATENTS.

7102. William Jones, London. Improved substitute for India-rubber. April 4, 1899.

7151. Charles Merington, London. Improvements in and connected with pneumatic tires. April 5, 1899.

7155. Arthur Du Cros, London. An improved fastening device for pneumatic tires. April 5, 1899.

7237. Augustus Camille, London. Improvements in coating mixtures for the proofing of fabrics and the machines used in their application. April 6, 1899.

7333. Adolph Meyer Edelstein, London. Improvements in or connected with injection tubes or nozzles of enema syringes. April 7, 1899.

7358. Joseph Paul Legrand, France. Improvements in or relating to protected elastic wheel tires. April 7, 1899.

7765. Louis Cox, Birmingham. Improvements in pneumatic tires. April 13, 1899.

7798. Theodor Seehausen, London. Improvements in tires. April 13, 1899.

7807. Johann Klapka, London. Improvement in pneumatic tires. April 13, 1899.

7965. W. A. Baker & Co., Limited, and Louis Summerfield, London. Improvements in stair treads, floor coverings, and the like. April 15, 1899.

7995. Joseph Thomas Wicks, Birmingham. Improvements in hot-water bottles, cushions, and the like—hollow-ware articles made of India rubber. April 17, 1899.

8041. Albert Edward Jens Valdemar Johan Theilgaard, London. Improvements in the process of disvulcanizing Caoutchouc, India rubber, Gum elastic, and similar materials. April 17, 1899.

8054. Henry Edmunds, London. Improvements in or connected with what are known as dry air insulation electric cables or conductors. April 17, 1899.

8109. Walter Player, Bristol. Improvements in tires. April 18, 1899.

8181. George Edward Rees, Harwood, near Bolton. Improvements in securing pneumatic or other tires to the rims of wheels. April 19, 1899.

8217. Henry Thomas Ward, London. Improvements in tires for bicycles. April 19, 1899.

8252. Francis Fordham Mote and William Roddick, London. Improvements in elastic tires for the wheels of cycles, and other vehicles.

8276. Charles William Abree Comley, Islington, London. An improved pneumatic tire. April 20, 1899.

8351. Charles Henry Spratt, London. Puncture proof bands for cycle tires. April 21, 1899.

NEW GOODS AND SPECIALTIES IN RUBBER.

A RUBBER CHALK HOLDER.

THE simplest billiard chalk holder that has yet been seen is that known as the improved Hart automatic chalk holder, invented and patented by J. W. Hart, Fond du Lac, Wis. It consists of a double-headed, flanged, rubber cylinder, enclosing the chalk, and preventing it from striking the table when released from use. The rubber holder appears in the cut under the corner of the table, at the left. When reaching for the chalk the player may pull it from the table for a considerable distance; on being released it returns to its place with the aid of a leaden weight suspended by a small rope and pulley. This device is warranted for five years. It is offered to the trade as a labor saver to the room keeper, and aid to cleanliness and convenience to the player. It has already been adopted by billiard rooms in the leading hotels and seems to suit everybody. [The McConihe & Hubbell Manufacturing Co., Nos. 116-118 East Fourteenth street, New York.]

AMERICAN WOMEN'S "NASSAU" TOE.

A BRAND new last for a woman's shoe—so new, in fact, that it is not included in the manufacturers' catalogue issued at the beginning of the current season—has been named the "Nassau." It has a bulldog shape, with quite a swing to the outer edge and with a fair breadth of toe. From the number of orders received already for the new style it is evident that it will prove very popular with the trade. It has been referred to as "a very sensible rubber for a sensible woman's shoe." The cuts herewith show a top view and a sole view. [American Rubber Co., New York and Cambridgeport, Mass.]

A NEW BLACKING FOR RUBBER HEELS.

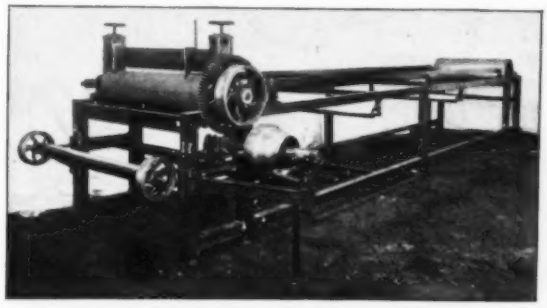
THE wide introduction of rubber heels for leather footwear has prepared the way for a new rubber heel blacking. It is warranted to color the edges of the rubber heel a jet black, giving it a bright, durable polish, and undoubtedly will prove a popular article for sale in the retail shoe trade. [F. W. Whitcher & Co., Boston.]

A PNEUMATIC SHOE FORM.

A PATENT has been granted to Leon Fitzjarrel, No. 111 Waverly place, New York, for a pneumatic shoe form, one advantage claimed for which is that it may be used for preserving the shape of shoes of varying styles and sizes, whereas with other articles made for the purpose it is necessary to buy new ones with every change in style of the shoes worn. It is made of rubber, with a tube for inflating it, provided with a special form of valve. The bag will conform in shape to the shoe in which it is placed. The inventor intends to have this article marketed at $5.50 per dozen for women's sizes and $6 for men's sizes.

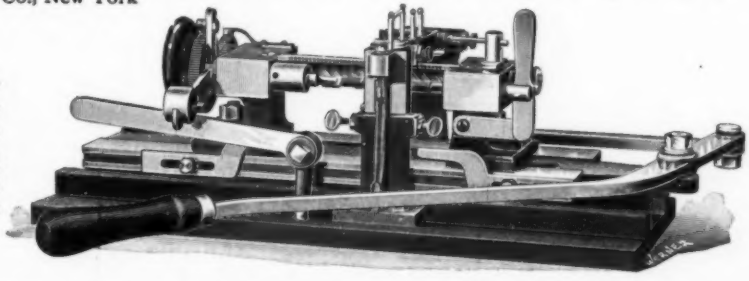
AN UP-TO-DATE RUBBER SPREADER.

IT is only a few years since it was confidently predicted that the calender would soon drive the rubber spreader out of the field and that the knife machine would exist only as a curiosity. The reverse proved to be true, however, and there never was a time in the history of the rubber trade when so many machines were running and so many yards of cloth coated as there are to-day. While the progress in new compounds and better and cheaper solvents has been great, the advance in machines for applying the coatings has been equally notable. The up-to-date machine is compact, strong, easily handled, and very speedy. That shown in the engraving, for instance, has all of the qualities named and may be understood at a glance. It is 16 feet in length, the heat being applied by means of steam pipes. The machine is not an experiment, as it is in use in numbers of the largest establishments in the United States. [American Tool and Machine Co., Boston.]



THE ADAMSON CHASING MACHINE.

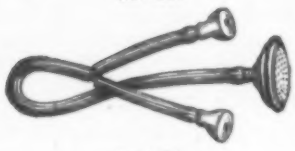
THIS machine was manufactured primarily for use in the decoration of hard rubber fountain pens. It can, however, be also used for the decoration of a variety of small hard rubber cylinders, such as pencil holders, delicate tool holders, etc. As it is supplied with both straight and wave mandrels the operator is enabled to cut hundreds of ornamental designs. The machine is simple, rapid, and beautifully finished. [A. Adamson, Akron, Ohio.]



ADJUNCTS TO THE MODERN BATHROOM.

THE sprays illustrated here are fitted with bulbs designed to fit any size of faucets. They are nickel plated, with rubber guards, to prevent injury to the bathtub, and each complete with five feet of rubber tubing. No. 6351 has a three inch spray and ⅜ inch rubber tube. A cheaper form has 2¼ inch spray, and 3½ feet of hose, without bulb or guard. No. 6354 is supplied with hot and cold water connections. No. 6356 includes a shower bath ring, made entirely of rubber, making it warm, soft, and very agreeable to the touch. It is made with hot and cold water connections; also with single connection. The fourth cut represents an adjustable bath tub seat, made to fit any size of bath tub. It is a polished oak seat, with nickel plated frame, with rubber bound ends and rubber bumpers. The rubber parts prevent injury to the tub; they also serve to prevent slipping and hold the seat firmly in place. These goods are referred to as being useful in helping dealers in plumbers' supplies to secure business in summer. [S. Sternau & Co., No. 195 Plymouth street, Brooklyn, N. Y.]

NO. 6351.



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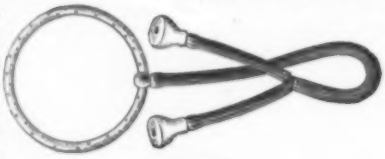
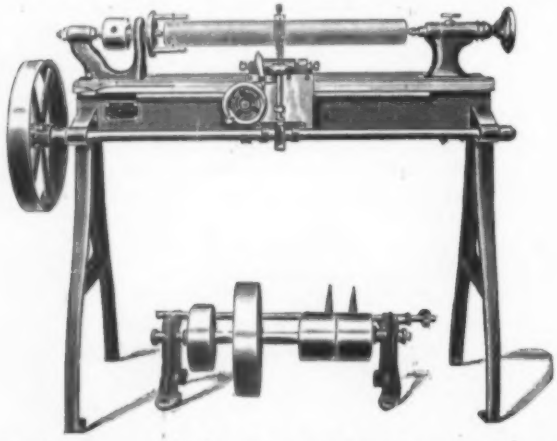


NO. 6356.

THROPP'S JAR RING LATHE.

THE manufacture of rings for preserve jars is not only a business that has assumed of late large proportions, but is one in which the margin of profit is small, and, unless the cheapest good compounds and the best automatic machinery are used, there is nothing in it it. The Thropp automatic lathe is designed to do as much, if not more, work in given time than any jar ring lathe yet invented. The interesting points about this lathe are as follows: The journal or spindle is made of tool steel running in a tool steel bearing which is cone shaped and has a screw end to take up any lost motion. It has also a brass connecting rod to connect the eccentric with the rocking tool post. The post works on centers with screw ends to take up lost motion. The lathe weighs, including countershaft, about 625 pounds, and has a capacity of 150 rings a minute. It is strongly built throughout and finely finished, and so arrranged that it will cut a variety of sizes or rings by simply changing the ratchet wheel. [William R. Thropp, Trenton, N. J.]



THE "UNCLE SAM" KNIT BOOT.

THE "Uncle Sam" knit boot was first put on the market in January, 1898, and sprang into immediate favor. Being a knit boot it had great strength and endurance—but it was more than simply a knit boot. A boot that is simply knit is liable to be porous. The meshes, of course, close up in shrinking, but not absolutely tight, and to be perfectly warm a boot must be perfectly tight. In making the "Uncle Sam" knit boot a patented process is used, by which long wool fiber is worked into all the meshes and through and through the fabric. Then when the boot is shrunk to the proper size this wool fiber is caught and held so tenaciously that it can never come out. The result is a boot that is not only impervious to cold, but which is bound to stay so. Last fall the manufacturers largely increased their factory facilities, and as a result the sales of the "Uncle Sam" knit boot during the first three months of the present year were over twice as large as the entire sales of last year. This boot was intended originally for lumbermen, but hundreds of thousands of people are wearing them who never have been near a lumbermen's camp. It is worn by farmers, and has a very considerable sale among teamsters, car conductors, and others who have to be out in all kinds of weather. [United States Rubber Co., New York.]

SMALLEY'S LIGHTNING SHAKER.

IT is becoming recognized that all mixed drinks require shaking, in order to afford the most desirable results, and druggists, soda fountain proprietors, and bartenders are interested in obtaining "shakers" which are at once simple and efficient. The illustration herewith represents a nickel plated or aluminum ring, which fits around the tops of two 12-ounce soda glasses, in connection with which is a ring of India-rubber, to prevent the glasses from striking together and also to prevent the loss of the liquid contents. The whole makes an absolutely tight joint. The soda fountain attendant will find it convenient, with one hand on the bottom of each glass, to hold them together, with the help of the ring, and thus shake them rapidly, with the result that the liquid can be handed to the customer in a much more pleasing form than when a shaker is not used. Retail price, 30 cents. A patent on this article has been applied for. A little later the same firm expect to bring out a "shaker" composed wholly of rubber. [A. G. Smalley & Co., No. 8 Blackstone street, Boston.]

A SILVER medal will be offered at the exhibition of the Ceylon Agri-Horticultural Society, at Colombo, July 21–22, for the best commercial sample (½ pound) of India-rubber grown on the island.

THE RUBBER SHOE TRADE NORTH AND SOUTH.

IMPORTANT GROWTH OF A SOUTHERN CENTER.

AS a result of careful observation the important shoe jobbing house of the Craddock-Terry Co., of Lynchburg, Va., have become satisfied of a growing demand on the part of both retailer and consumer for a better class of rubber boots and shoes than has generally been sold in the South. Hence they have decided to establish an exclusive rubber department which, in efficiency of management and in variety and character of goods carried, will equal any other rubber boot and shoe house in the country.

Lacking space in their own large store for the new department, they have secured for this purpose a four story and basement building, on the opposite side of Ninth street, all of which will be devoted to rubbers, under the management of J. A. Utterback, formerly with Boyd, Jones & Co., of Baltimore. Mr. Utterback will spend part of his time on the road, but the firm will employ a large traveling force besides, their territory covering several southern states, including Mississippi, Tennessee, and Kentucky.

The principal line carried will be the "Boston" and "Bay State" rubbers. They will carry also the Byfield Rubber Co.'s "Narragansett" brand. The firm have issued an attractive pocket size rubber catalogue and net price list, covering the more staple styles of rubbers which they keep in stock.

Although Lynchburg is a city of only about 25,000 people, it has become of late one of the most important distributing centers for shoes in the South. The increase in the number of cases of leather boots and shoes shipped to that city is shown by these figures:

1887.	1890.	1895.	1898.
9,647	31,627	67,408	106,601

Of the total for last year, the Craddock-Terry Co. state that they handled 57,161 cases, there being two other jobbing houses in the city. The company have been in the trade for about ten years. On December 1, 1898, they were incorporated, with $275,000 capital paid in, and it is expected that their trade in leather goods this year will reach a volume of $1,200,000. The officers are: John W. Craddock, president; A. P. Craddock, vice president; T. M. Terry, secretary and treasurer.

ANOTHER important house in the Lynchburg trade is the George D. Witt Shoe Co.—George D. Witt, president, and John C. Dabney, secretary and treasurer. They write to THE INDIA RUBBER WORLD:

"The rubber business in the South for the past few years has been neglected, in our opinion, by most jobbers, as the compensation for handling this class of goods has been unsatisfactory. It is an established fact that the volume of the rubber business in the South has been done on a cheap class of goods. The past winter was so severe that it cleaned out to a great extent the accumulation of rubber stock on hand. We have thought for some time that a better demand might be created for a higher grade of rubber goods, and a larger business done in the South and Southwestern states, and looking to this end we have opened a new department in our building, sufficient to hold 25,000 cases of rubber goods, and will put a rubber man at the head of this department and will furnish our trade with the cheapest to the highest grade of rubber goods. Our catalogue is now ready to send to our customers, calling their attention to the advantages we propose to offer the coming season. Our large store is situated on the tracks of the Chesapeake and Ohio railway, and our goods are delivered direct in the store."

The Witt company will carry a full line of Woonsocket goods, including the "Rhode Island" brand, and also the Candee and "Colonial" rubbers. The trade will be reached by twenty-four traveling men.

THE ST. LOUIS JOBBING TRADE.

THE *Shoe and Leather Gazette* notes the following lines of rubbers (including "seconds") as carried this year by the St. Louis jobbing houses:

Monarch Rubber Co.=Wales-Goodyear, Woonsocket, Hood, Byfield; Wales Goodyear combinations.

George W. Perry & Co.=American, Candee, Woonsocket; American and Candee combinations.

Day Rubber Co.=Meyer, Jersey; Meyer and Jersey combinations.

Sanders Duck and Rubber Co.=Wales-Goodyear, Woonsocket; "Uncle Sam" combinations.

Hamilton Brown Shoe Co=Wales-Goodyear, Woonsocket; various combinations.

The Brown Shoe Co.=Goodyear Glove, Candee, Woonsocket, Jersey, Byfield; Goodyear Glove and Jersey combinations; Tennis.

Roberts, Johnson & Rand Shoe Co.=Boston Rubber Shoe Co.; same in combinations.

Dittmann Boot and Shoe Co.=Boston Rubber Shoe Co.; same in combinations.

Terment Stribling Shoe Co.=Woonsocket, American; "Uncle Sam" combinations.

Ver Steeg Grant Shoe Co.=Lycoming; same in combinations.

Kelley-Goodfellow Shoe Co.=Providence.

UNCLE SAM BUYS BANIGAN GOODS.

J. D. MCDONALD, Chicago manager for Edward R. Rice, selling agent for the Banigan rubber shoes, recently captured a good sized government contract. "We simply submitted samples of Banigan goods and secured the contract," says Mr. Rice. "I suppose it is a fair assumption that the government made some inquiry in regard to the quality of our goods and the character of the company, and that we were awarded the contract strictly on the merits of the goods."

YACHTING SHOES FOR THE CUP DEFENDERS.

THE National India Rubber Co. (Bristol, R. I.) recently supplied Mr. C. Oliver Iselin, for the crews of the yachts *Defender* and *Columbia*, some 250 pairs of their regular white and brown yachting tennis shoes. They furnished at the same time a special lot of 76 pairs of special light weight short and sporting boots for the *Columbia's* crew. The National company's yachting shoes are understood to have been in greater demand this season than ever before. Not only have they made at least three times as many this season as in any previous year, but they have done a very heavy tennis business in the whole line.

THE TRADE IN THE NORTHWEST.

RUBBER shoes of the various brands are handled by the following jobbers in St. Paul and Minneapolis:

Foot, Schulze & Co., St. Paul=Goodyear Glove.

North Star Shoe Co., Minneapolis=Boston Rubber Shoe Co. and "Bay State."

St. Paul Rubber Co., St. Paul=American and "Para."

Tarbox, Schliek & Co., St. Paul=Candee and Jersey.

The Goodyear Rubber Co. have their own house in St. Paul, with office and sample room in Minneapolis.

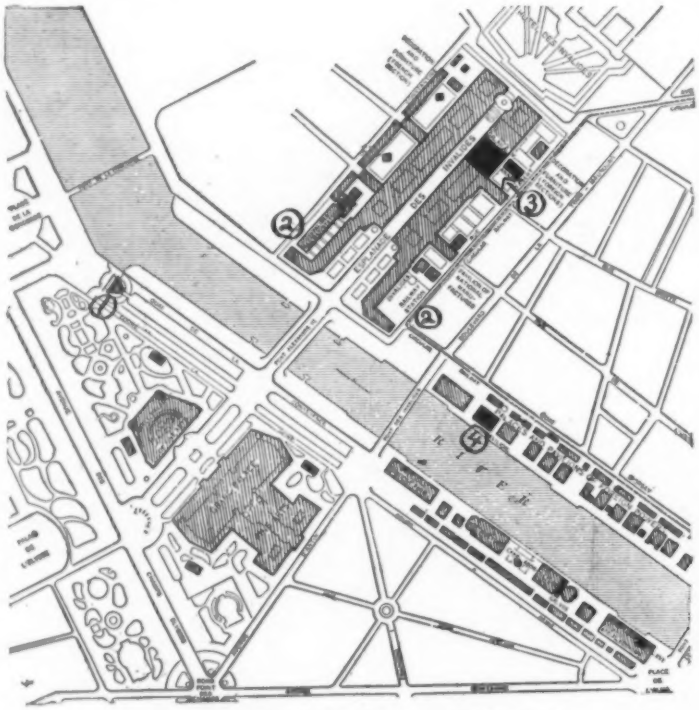
INDIA-RUBBER AT THE PARIS EXPOSITION OF 1900.

IN a former edition was published a short sketch of the plans which Mr. M. H. Hulbert, director of the department of varied industries of the United States Commission to the Paris Exposition of 1900, intends to follow, of having the manufacturers of India-rubber combine in one large union exhibit. The articles included in these industries, as classified by the French authorities, are as follows:

CLASS 99.—India-rubber and Gutta-percha Industries. Equipment, processes, and general products.

The space allotted to the India-rubber trade will be devoted chiefly to an exhibit of the manufactured articles, but all small devices and processes which can be operated without detracting from the dignity and value of the exhibit will be placed in the same space. The manufacturers of heavy machinery which uses oil or produces waste will receive individual spaces nearby. Machines and processes shown in active operation are always of interest to the public, and will enhance the advertising value of the exhibit.

This suggests what Mr. Hulbert says is the primary object of the collective exhibits, viz.: to make our exhibit of the India-rubber industry so instructive and attractive that the public will be impressed with the high perfection of the business here, and superiority over corresponding industries of the other exhibiting nations. Visiting Americans will also have cause to feel proud of the India-rubber industries of their country.



LOCATION OF THE RUBBER EXHIBITS. (FIG. 3.)

Official Plan indicating that part of the Paris Exposition Grounds containing United States National Building, Art Galleries, and Manufacturers' Building.

[Prepared by the United States Commission to the Paris Exposition of 1900.]

Mr. Hulbert intends, by using the services of able experts, carefully to select from contributing articles and improved machinery, and to combine them into one exhibit.

Though many of the manufacturers make a full line in their class of goods, they usually have some one thing of which they make a specialty, and it will be the best of this specialty that will be selected, as far as possible. Each section being thus represented by the manufacturer which excels in that particular article, the exhibits will be made up of the best from the best, and as a whole will cover a full line of all the branches of the industry.

The expense to each exhibitor in this collective exhibit will be comparatively small, and the benefit to the trades should be large. It is therefore hoped that the manufacturers will coöperate in the undertaking. Those who desire to do so, should address their applications to the Hon. Ferdinand W. Peck, commissioner general, Auditorium building, Chicago, naming the articles they wish to enter and the amount of wall or floor space required. Information will then be sent to them at an early date in regard what the expense to them would be, and other details. They can then make a binding application on the regular blanks of the commission, which may be obtained for the asking.

LOCATION OF THE RUBBER EXHIBITS.

THE plan herewith shows that part of the grounds of the Paris Exposition of 1900 containing the building in which the United States department of varied industries is located. This department includes the India-rubber industries, which are to be represented at the Exposition by one large exhibit made up of selected specialties of the manufacturers of this country.

The dark spot marked 1 indicates the main entrance, or entrance of honor, which is directly off the Place de la Concorde. The first building to the right is the small art gallery, and the next the large gallery, just in front between these two is the great bridge of Alexander III, now in course of construction. On the other side of the bridge comes the building of manufactures, the part on the left being used for French exhibits and that on the right for foreign. A terminal station of the railroads is located at the beginning of this building (2), extending under the walk, and occupying both sides.

The United States space for the department of varied industries is shown at 3, Germany being on one side and England on the other. Along the river Seine, on the same side, are the pavilions of foreign powers. The second one, marked 4, is the United States national building. The rule governing these buildings is that the sovereign or president must personally visit the same during the Exposition in order that the nation be permitted to build. The president of the United States, following a well established precedent, does not leave the country during his term of office, but the commissioner-general, the Hon. Ferdinand W. Peck, nevertheless succeeded in obtaining permission to build. A short distance past these na-

tional buildings comes the balance of the Exposition grounds.

It will be seen that the surroundings of the exhibits of India-rubber are most auspicious. They are located in the first building for industries after passing through the main grand entrance. They are near the two art galleries, which the French will naturally be expected to make the finest the world has ever seen. Close by is the bridge of Alexander III, which is to be an architectural attraction in itself. They are near a large terminal station, and near the national building of the United States. All these facts, together with the location between the two great nations of England and Germany, should be incentive enough for the manufacturers of these goods in America to throw aside all petty jealousies and combine heart and soul in making a combination exhibit that will not only be looked upon with pride by the Americans at the Exposition but will be a lasting and convincing argument to other nations that we lead the world in this class of goods, and that they should come to us when they want them.

DEATHS IN THE RUBBER TRADE.

GEORGE A. CLAPP.

GEORGE A. CLAPP, a prominent member of the rubber trade of New England died at his home in Newtonville, Mass., on June 19. He was born in South Scituate about 50 years ago. He attended the public schools of his native town and early turned his attention to the business of manufacturing. At the time of his death he was the senior member of the E. H. Clapp Rubber Co., with mills at Hanover, Mass., and offices at No. 35 Federal street, Boston. He spent twenty years of his life in Hanover and had charge of the manufacturing branch of the company's business. About seven years ago he became president of the company and removed his residence to Boston, in the business interests of which he had always been concerned. He had lived in Newton about one year at the time of his death, and was erecting a handsome residence there, with the idea of making his home in the place permanent. A widow and three children survive Mr. Clapp. He was a member of Phœnix lodge, A. F. and A. M., of Pilgrim chapter, and of Old Colony commandery, all of which were represented at the funeral, besides the Boston Trade Club and the Newton Club. Many prominent Boston men attended the funeral. The Rev. C. H. Beal, pastor of the Immanuel Congregational church, officiated. The interment was in the Newton cemetery. The pallbearers were James Bennett Forsyth, representing the rubber trade; George W. Bishop, of the state railway commission, representing Newton friends; C. H. Delano, representing business friends; and Adolphus Waterman, representing the masonic fraternity.

At a meeting of the rubber trade of Boston, held on Tuesday afternoon, June 20, at the office of the Boston Belting Co., to take action on the death of Mr Clapp, there were present:

James Bennett Forsyth (Boston Belting Co), A. H. Yeomans (Boston Rubber Shoe Co.), George P. Eustis (American Rubber Co.), George H. Hood (Hood Rubber Co.), W. H. Gleason (Revere Rubber Co.), George P. Whitmore (Boston Belting Co.), W. N. Shelton (Franklin Rubber Co.), W. F. Robinson (Boston Woven Hose and Rubber Co.), C. H. Arnold (Reimers & Meyer), J. H. Treadway (Cable Rubber Co.), W. B. Dickerman (National India Rubber Co.), F. W. Stevens (Davidson Rubber Co.), M. F. Coughlin (Columbia Rubber Co.), W. F. McClintock (Stoughton Rubber Co.), J. Frank Dunbar (George A. Alden & Co.)

Mr. A. H. Yeomans, of the Boston Rubber Shoe Co., was elected chairman, and Mr. W. H. Gleason, of the Revere Rubber Co., secretary. Messrs. James Bennett Forsyth, Henry C. Morse, and Henry C. Pearson were appointed a committee to draft suitable resolutions, expressing the sentiments of the meeting, and the high regard and esteem that the trade felt for their former associate. Mr. George P. Whitmore was appointed a committee to secure suitable flowers, and Messrs. A. H. Yeomans, James Bennett Forsyth, and W. H. Gleason a committee to represent the rubber trade at the funeral.

It was voted to close their respective places of business during the hour of the funeral, 2 to 3, on Wednesday, June 21. Telephone messages were received from the Tyer Rubber Co. and others, regretting their inability to be present, and desiring to join with the others in showing their regard and respect for the deceased.

The following resolutions were adopted:

WHEREAS, Our friend and business associate, Mr. George A. Clapp, has been removed from our midst by the hand of death, we, the undersigned, members of the rubber trade, in deep sorrow, offer the following resolutions:

Resolved, That the death of George A. Clapp is a severe loss to the rubber trade. To those who knew him best, his quiet persistence in the line of duty, his unassailable integrity, and his quiet friendliness brought its full meed of respect and love, and his taking away is generally and genuinely mourned.

Resolved, That a copy of these resolutions be sent to his family.

GEORGE CLAPP.

GEORGE CLAPP, manager of the Chicago house of the Goodyear Rubber Co., died suddenly of apoplexy at his home in Oak Park, near that city, on June 13. He had been seemingly in the best of health. Mr. Clapp was born in 1835, at Providence, R. I., where his mother still lives, past her ninetieth year. He was a nephew of the late Cyrus Cleveland, a marine insurance adjuster in New York, who became interested in a mercantile business in Washington, D. C., during the war, and sent his nephew there to represent his interests. The firm became Allen, Clapp & Co. They were customers of the Rubber Clothing Co. (New York), of which Frederick M. Shepard and the late Joseph A. Minott were the proprietors, and in 1864 Mr. Clapp accepted an invitation from these gentlemen to enter their employ, their store being then at No. 347 Broadway, New York. In addition to being president of this company, Mr. Shepard was engaged, with a younger brother, in the rubber druggists' sundries business, as F. M. & W. A. Shepard, in New York. A branch of this latter business was opened in Chicago, W. A. Shepard going out to take charge of it. His health failed in 1866 or 1867, and Mr. Clapp was sent from New York to take charge of the business, succeeding to the position of manager upon the death of Mr. Shepard, a little later. Eventually the house became the Chicago branch of the Goodyear Rubber Co., organized by Messrs. Shepard and Minott, and Mr. Clapp remained in charge to the end of his life. He was successful as a business man, had many warm friends, and is survived by a wife and daughter, to whom he left an attractive home in Oak Park.

THE United States cable ship *Hooker*, with the cable for the Philippine islands, mentioned in the last INDIA RUBBER WORLD, reached Manila on June 25.

NEWS OF THE RUBBER TRADE.

NEW BUILDING OF THE VICTOR RUBBER CO.

THE Victor Rubber Co. (Springfield, Ohio) are putting up an addition to their factory, a brick building 150×50 feet, two stories, basement, and attic. It will be roofed with slate and provided with an elevator. The building will be equipped with the newest and latest machinery for the production of rubber goods, especially tires. They manufacture all the tires used by the Victor Rubber Tire Co., in that city, and their various branches, and they also supply the trade with vehicle tires, and various other rubber goods in the mechanical and specialty lines. They have first class shipping facilities, and the location of their factory at Snyderville, outside of the city, enables their employés to live in a beautiful location. They have put up, and are still erecting, a number of dwelling houses. The location is in the old fighting ground of Tecumseh, the famous Indian chief, and historical from that point of view. Their trade mark, consisting of an arrow head, is taken from one which was found in that locality.

GOOD BUSINESS AT SPRINGFIELD.

BRECK BROTHERS, proprietors of the "Goodyear" rubber store, Springfield, Mass., will remove on August 15 from their present location, where they have been for fifteen years, to the new Walker building, No. 478 Main street. Their new store will be 24 × 110 feet, and they expect to make it the finest of its class in New England. The Messrs. Breck inform THE INDIA RUBBER WORLD that there are indications of a good fall business in their line. They regard the general advance in the prices of rubber goods with favor, as having a tendency to improving the quality of goods and give better satisfaction to the purchaser. This house handles the Goodyear Glove company's rubber footwear, and no falling off in demand on account of the higher prices this season is anticipated.

AFFAIRS OF THE UNITED STATES RUBBER CO.

THE following annual statement by the United States Rubber Co. was filed on June 3 with the commissioner of corporations in Massachusetts, as required by the laws of that state, referring to the condition on March 31:

ASSETS.

Land and water power, buildings, machinery	$1,661,392
Cash and debts receivable	2,356,823
Manufactures, merchandise, material, stock in process	1,617,609
Patent rights	239,154
Loans secured by mortgage	30,000
Stocks in other corporations	44,979,963
Total	$50,884,941

LIABILITIES.

Preferred stock	$23,525,500
Common stock	23,666,000
Debts	1,928,899
Reserved for April and July dividends	941,020
Balance profit and loss	823,522
Total	$50,884,941

COLONEL POPE'S AUTOMOBILE INTERESTS.

THE transfer deed of the Columbia Automobile Co., incorporated in New Jersey March 22, with $3,000,000 capital, to the Columbia Electric Vehicle Co., incorporated later with $5,000,000 capital, was filed at Hartford, Conn., on June 12. The deed was executed in New York and signed by Albert A. Pope, president. It transfers the entire plant in Hartford, known formerly as the Pope Motor Carriage Works. A large addition is to be built, to provide for an increase in business. The list of incorporators of the companies named was practically the same in both cases, "dummies" being used. The Columbia automobiles, with tires made by the Hartford Rubber Works, were a noticeable feature at the Electrical Exhibition held recently in New York.

GOOD BUSINESS IN THE NORTHWEST.

THE Goodyear Rubber Co. (St. Paul, Minn.) inform us: "We are glad to be able to report to you that our trade up to June 1 is far ahead of 1898, or any previous year. Prospects are very encouraging in the northwest for a large business this season. The territory of this store is northwest Wisconsin, northern Iowa, Minnesota, the two Dakotas, and Montana."

THESE ARE NOT RUBBER COMPANIES.

THE "Lackawanna Rubber Co." were reported lately in the newspapers to have bought 6000 acres of timber lands near Williamsport, Pa. Treasurer Samuel N. Williams, of the Lycoming Rubber Co., informs THE INDIA RUBBER WORLD that this was a misprint for the Lackawanna Lumber Co. The Lycoming rubber factory is the only one in Pennsylvania.

The newspapers have also mentioned the "Hilton Rubber Co.," of Wilmington, N. C., as a complainant before the Interstate Commerce Commission, regarding railway rates. The secretary of the commission states that the Hilton Lumber Co. was meant.

RUBBER TIRES FOR FIRE APPARATUS.

THE Rubber Tire Wheel Co. (Springfield, Ohio) have been awarded a contract for applying rubber tires to all the hose carriages, patrol wagons, and buggies used by the fire department of Pittsburgh, Pa. This is a result of the success of an experiment begun early in the year in the use of rubber tires on a hose carriage. The whole has been due to the attention of Miles S. Humphreys, chief of the Pittsburgh bureau of fire, being called to the equipment of a fire engine in New York city with rubber tires. A letter from his office to The INDIA RUBBER WORLD states that it is not known how much rubber work will be required.

ACTIVITY OF A NEW COMPANY.

THE Pennsylvania Rubber Co. (Erie, Pa.) are about completing an important extension of the old Erie Rubber plant, recently acquired by them. The additions include two rooms for tire work, 80 × 40 feet and 108 × 65 feet, respectively, and a drying room 80 × 40 feet. They are preparing for an extensive business in tires, for both bicycles and automobiles. They have in hand already an encouraging number of orders from the bicycle trade, and will be ready soon to offer something new in pneumatic vehicle tires, which will be covered by a patent. Superintendent Middleton has been in the east lately, to secure additional equipment for tire work and additional skilled help. Herbert Du Puy has been elected president and F. A. Wilcox secretary and general manager.

SAFETY FUSES NOT EXPLOSIVE.

THE treasury department has advised the collector of customs at New York, in regard to the complaint of J. Fitz-Brind, manager of the Insoloid Fuse Co. (Denver, Col.), that a certain importation of safety fuses has been improperly detained at this port, that in the opinion of the department safety fuses are not in themselves explosive articles, and, therefore, are entitled to the privilege of immediate transportation under the act of June 10, 1880.

BOSTON WOVEN HOSE AND RUBBER CO.

THE following is a copy of a circular which has been issued to the trade:

We take pleasure in announcing the reorganization of the Boston Woven Hose and Rubber Co. with a paid in capital of $1,200,000, and no liabilities, giving ample capital to do business in a larger way than ever before.

The new management will consist of some of the strongest business men in New England, and most of the old working force will be retained.

With the greatly increased capital, we will be able to carry a larger stock than heretofore, and will be in position to supply our customers' needs more promptly than in the past.

Many economies have been introduced, and, with a plant thoroughly up to date and in superb condition, we will be enabled to manufacture goods at a minimum cost.

We shall continue to manufacture hose, belting, packing, tires, and general mechanical rubber goods.

Inviting a continuance of your favors, we are Yours very respectfully,

BOSTON WOVEN HOSE AND RUBBER CO.

The directors of the company as reorganized are:

J. Q. Bennett, president Mercantile Trust Co., Boston.

W. A. Bullard, president First National Bank, Cambridge, Mass.

J. N. Smith, director Security Safe Deposit and Trust Co., Lynn, Mass.

B. F. Spinney, president National Security Bank, Lynn, Mass.

H. B. Sprague, president Central National Bank, Lynn, Mass.

J. N. Smith has been elected president and Henry B. Sprague treasurer. The executive offices are at the factory, No. 29 Hampshire street, Cambridgeport, Mass. Salesrooms will be maintained at No. 170 Summer street, Boston; No. 105 Reade street, New York; No. 207 Lake street, Chicago; No. 8 South Water street, Cleveland; No. 14 Fremont street, San Francisco.

A NEW HARD RUBBER COMPANY.

THE Canton Hard Rubber Co. (Canton, Ohio), the incorporation of which we reported last month, have elected C. W. Keplinger, president; G. W. Ake, vice president; Samuel Ake, treasurer; Frank Keplinger, secretary and manager. The business was carried on formerly by The Canton Pole and Shaft Co., whose officers and stockholders are the same, and who began business about one year ago. They manufacture hard rubber covered harness trimmings, and a line of their products will be ready to be placed on the market during this month.

A TRADE NOTE FROM AUSTRALIA.

TO THE EDITOR OF THE INDIA RUBBER WORLD: I take this opportunity of informing you that the firm of Perdriau & Co., of Sydney, N. S. W., and Melbourne, Victoria, has been dissolved. Mr. Henry Perdriau will continue the Sydney business, while Mr. Charles Perdriau and myself will continue the Melbourne business under the name of Perdriau Brothers. You will later receive an official notice of the change, but I write you now so that you may send us, direct to Melbourne, a copy of your valuable paper. We shall also be pleased to receive any price lists and samples with discounts that the American manufacturers can send us. Yours, faithfully,

W. S. PERDRIAU.

Australian Rubber Works Depot, Melbourne, May 22, 1899.

A NEW RUBBER SUBSTITUTE.

JAMES DENNIS, of Anderson, Ind., after experimenting for several years, has produced an oil rubber substitute for which, at the latest advices, he was about to apply for a patent. The officers of the Buckeye Manufacturing Co., makers of hardware and carriage specialties, in the same town, have become much interested in the new invention. G. A. Lambert, secretary and treasurer of that company, writes to THE INDIA RUBBER WORLD: "We are certain that Mr. Dennis's discovery will result in great things, from the tests we have already made. We have bicycle tires that have been in use about seven weeks. They are single tube tires, and have not been pumped up since the day they were put on, and they have been on the road continually."

A TEN MILLION DOLLAR TIRE COMPANY.

THE Consolidated Rubber Tire Co. filed a certificate of incorporation with the secretary of state at Trenton, N. J., on April 15, with $10,000 capital, and with the privilege of increase to $10,000,000. The incorporators named were Richard Stockton, Theodore Backus, and Frank R. Hutchinson, all of Trenton. The same issue of THE INDIA RUBBER WORLD in which the news was reported contained an account of the sale of the Rubber Tire Wheel Co. (Springfield, Ohio) to a syndicate identified with the electric vehicle interests. The preliminary organization of the tire company was effected by the election as president of James E. Hays, a lawyer of No. 100 Broadway, New York. The permanent organization is not yet complete, but Emerson McMillin has been elected president, to date from July 1. He is the head of the banking firm of Emerson McMillen & Co., No. 40 Wall street, New York, and a prominent member of the syndicate which purchased the Kelly Springfield tire interests. The Consolidated Rubber Tire Co. have now opened offices at No. 40 Wall street. Mr. McMillin informs THE INDIA RUBBER WORLD that E. S. Kelly, who was president and leading stockholder in the Springfield company, will be manager of the company, and "just as much in the saddle as he ever was" in the conduct of the business. V. H. Cartwell, the local manager in New York for the Springfield concern before the transfer, is in charge of the new offices. The details of the transfer are contained in the issue of this journal for May 1 last. The Mr. Hays mentioned above is a director in the New York Electric Vehicle Transportation Co., incorporated in New Jersey with $25,000,000 capital, of which Harry Payne Whitney is president.

NEW RUBBER SHOE CONCERNS PROJECTED.

REPORTS come from Collinsville, Conn., of steps taken there to organize a new rubber shoe factory on a large scale, a contract having been closed with parties in Canton—near there—for the necessary land and water power on the Farmington river. The location of the new plant is to be about half a mile above the old powder mill property in Canton. The parties interested are said to have been stockholders in some of the rubber factories which were combined several years ago, but who were opposed to such combination. Hayes Lougee, a Boston lawyer, is mentioned as the principal promoter, and J. H. Bidwell, of the Canton Trust Co., is spoken of for president of the new company. Contracts are said to have been awarded for excavations for the foundations of the principal buildings. ==At an earlier date efforts were made to secure the location at Collinsville of a projected new rubber shoe company which is reported now to have chosen a site in Concord, Mass. This concern has been organized under Maine laws as the Concord Rubber Co., with $500,000 capital authorized. The directors are: John G. Robinson (president), Melrose, Mass.; Dana B. Paul (treasurer), Boston; and Louis H. Schroeder, Chelsea, Mass. Eben Winthrop Freeman, of Portland, Me., is clerk. The Boston office is at No. 48 Lincoln street.

GOODYEAR RUBBER CO. CHANGES.

THE death of George Clapp, for more than thirty years manager of their Chicago branch, will be followed by some changes in the management of the western business of the Goodyear

Rubber Co. The territory covered hitherto from the Chicago and Milwaukee branches will be consolidated, in charge of W. W. Wallis, manager of the company's house in Milwaukee, and whose headquarters will remain in the latter city. The Goodyear company will retain an office at their present Chicago address—No. 141 Lake street—probably in charge of Charles A. Browne, long in their employ as cashier, but the stock of goods carried there will be consolidated with that carried in Milwaukee. The marvelous development in transportation facilities, to say nothing of other changes in business conditions since the Goodyear Rubber Co. first planted their chain of branch houses across the continent, renders less necessary nowadays the keeping up of so many separate stocks of goods in order to supply the trade throughout the country, and the consolidation of the Chicago and Milwaukee districts is in accord with the policy under which they recently brought under one management the branches at Minneapolis and St. Paul.

THE BICYCLE TRUST MAKES A START.

THE organization of the American Bicycle Co., incorporated in New Jersey with $80,000,000 capital authorized, and which has been referred to as "the bicycle trust," was practically completed at a series of meetings held in New York on June 21–23. The plan involves taking in a few of the leading concerns at the start, and not making any changes of a revolutionary character. The following firms were represented at the New York meetings:

Ames & Frost Co., Chicago.
(c) American Saddle Co., Cleveland, Ohio.
Acme Mfg. Co., Reading, Pa.
Barnes Cycle Co., Syracuse, N. Y.
Black Mfg. Co, Erie, Pa.
Buffalo Cycle Mfg. Co, Buffalo, N. Y.
(c) H. A. Christy & Co, New York.
Crawford Mfg. Co., Hagerstown, Md.
Colton Cycle Co., Toledo, Ohio.
Columbus Bicycle Co, Columbus, Ohio.
(f) Cleveland Machine Screw Co.
Eagle Bicycle Mfg. Co., Torrington.
Fanning Cycle Mfg. Co., Chicago.
A. Featherstone & Co., Chicago.
Fay Mfg. Co., Elyria, Ohio.
Gormully & Jeffery Mfg. Co., Chicago.
Grand Rapids Cycle Co., Grand Rapids, Mich.
Geneva Cycle Co., Geneva, Ohio.
Hartford Cycle Co., Hartford, Conn.
(a) Hartford Rubber Works, Hartford.
(f) Hart & Cooley Mfg. Co., Chicago.
Indiana Bicycle Co., Indianapolis.
(a) Indianapolis Rubber Co., Indianapolis.
(b) Indiana Novelty Mfg. Co., Plymouth, Ind.
(d) Indianapolis Chain and Stamping Co., Indianapolis.
H. A. Lozier & Co., Cleveland.
Lamb Mfg. Co., Chicopee Falls, Mass.
A. D. Meiselbach, Chicago.
Monarch Cycle Mfg. Co., Chicago.
Milwaukee Engineering Co., Milwaukee.
Milwaukee Mfg. Co., Milwaukee.
Nuttall Mfg. Co., Nyack, N.Y.
North Buffalo Wheel Co., Buffalo.
Pope Manufacturing Co., Hartford.
(a) Peoria Rubber and Manufacturing Co., Peoria, Ill.
Sterling Cycle Works, Kenosha, Wis.
Shelby Cycle Mfg. Co., Shelby, Ohio.
Stover Bicycle Mfg. Co., Freeport, Ill.
(e) C. J. Smith & Sons, Milwaukee.
E. C. Stearns & Co., Syracuse.
Syracuse Cycle Co., Syracuse.
(e) G. L. Thompson Mfg. Co., Chicago.
Viking Mfg. Co., Toledo, Ohio.
Western Wheel Works, Chicago.
White Sewing Machine Co., Cleveland.

(a) Tire manufacturers. (b) Wood rims. (c) Saddles. (d) Chains. (e) Parts, Stampings. (f) Steel balls. (g) Steel.

A. G. Spalding, of New York, who has been recognized as the most active promoter of the new combination, presided at the meetings, and it seemed to be the unanimous opinion of the manufacturers present that he should be chosen as president of the company when the election of officers takes place. C. W. Dickerson, of the Sterling Cycle Works, acted as secretary. *The Wheel* (New York) on June 22 printed a list of twenty-four bicycle concerns which, it was thought, would form the nucleus of the American Bicycle Co., and estimated their output for this year at 605,000 wheels, while the total demand for the current year was estimated at 1,000,000. The official list since given out, however, shows some thirty-five bicycle concerns to be included, besides parts makers, which would put the "trust" in control of a larger percentage of the total production than *The Wheel's* figures would indicate.

FIRST DIVIDEND ON "RUBBER GOODS."

THE directors of the Rubber Goods Manufacturing Co., on May 31, declared a dividend of 1¾ per cent. on the preferred stock for the quarter ending June 1, the dividend being payable on June 15. The amount disbursed was $108,430. A report was current that the earnings of the various constituent companies since January 1 had been in excess of $500,000, or more than enough to pay dividends for a full year on the preferred stock now issued. The common stock of the company failed to advance after the dividend announcement. Recent quotations have been: Preferred, 78½ bid, 79½ asked; Common, 24 bid, 25 asked.

A NEW RUBBER FACTORY NEAR AKRON.

IT is reported that a rubber factory is to be established at Barberton, Ohio, a manufacturing village of 3000 inhabitants and seven miles south of Akron. The stockholders will be: I. C. Alden, connected with The Whitman & Barnes Manufacturing Co. (Akron, Ohio) for about thirty years, treasurer from 1876 to 1898 and since president; E. L. Toy and Wilmer Dunbar, both formerly with the Diamond Rubber Co. and for two years past in the rubber department of the Whitman & Barnes company; and George Kohler, a young lawyer with capital and a son-in-law of Mr. Alden. The company had not completed an organization or selected a name, at last advices, but were reported to have secured the old Creedmore cartridge factory at Barberton and ordered rubber machinery from the Farrel Foundry and Machine Co. It is understood that they will manufacture mechanical goods and golf balls and other specialties. The company probably will be incorporated as the Alden Rubber Co., with $100,000 capital.

NEW INCORPORATIONS.

THE American Chicle Co., June 2, under New Jersey laws; capital, $9,000,000, of which $3,000,000 is in 6 per cent. cumulative preferred stock and $6,000,000 in common stock. Of this amount $1,000,000 of public stock has been offered for public subscription at par, accompanied by $500,000 of common stock. The company is to acquire the Beeman Chemical Co. (Cleveland, Ohio), W. J. White & Son (Cleveland, Ohio), Kiss-Me Gum Co. (Louisville, Ky.), J. P. Brimley (Chicago), S. T. Britton & Co. (Toronto, Ont.), and the Adams & Sons Co. (Brooklyn, N. Y.) Of the latter, the new company acquires the total capital stock of $1,000,000, except shares of the par value of $1350. It is stated that the concerns named have earned on an average over $500,000 annually for five years, without including the Canadian factory, which has averaged $4000. The organization of the new company is understood to have been effected by Charles R. Flint, of New York, and Thomas F. Harvey, of Chicago. Incorporators: Samuel B. Lawrence, John B. Summerfield, Henry C. Everdell, and Armitage Matthews, of New York; J. C. Young, of Jersey City. The following directors were elected June 16: W. J. White, W. B. White, E. E. Beeman, and George H. Worthington, of Cleveland, Ohio; Thomas Adams, Thomas Adams, Jr., and Henry Rowley, of Brooklyn; Charles R. Flint, of New York; Thomas L. Jefferson, of Louisville, Ky.; J. P. Brimley, of Chicago; S. T. Britton, of Toronto; and James C. Young,

of Jersey City, N. J. These officers have been elected since: W. J. White, president; George H. White, vice president; Henry Rowley, secretary and treasurer; Thomas Adams, Jr., chairman of board of directors.

=Grieb Rubber Co. (Philadelphia), June 11, under New Jersey laws; capital, $100,000. Incorporators and directors: William G. Grieb, John W. Brown, Harry Grieb, Andrew C. McGowin, and Andrew G. Wood. Officers: William G. Grieb, president and general manager; Harry Grieb, secretary and treasurer; John W. Brown, superintendent. This is a reorganization of the Grieb Rubber Co., not incorporated, which was formerly the Mundell Rubber Co. (Trenton, N. J.) The company have erected a new plant on Olden avenue, Trenton, on land owned by them, and this plant is equipped with a full line of machinery for the manufacture of rubber specialties for the boot and shoe trade—heels, tennis soles, etc.—and the mill is expected to be running shortly at full capacity. They inform THE INDIA RUBBER WORLD that, in due time, they will consider the feasibility of making a general line of rubber goods. The office of the company is at No. 531 Market street, Philadelphia.

=The Maple Leaf Rubber Co., Limited (Toronto, Ont.) under the Ontario companies act, to manufacture rubber goods. This is an application of The Toronto Rubber Shoe Manufacturing Co., Limited, for supplementary letters patent, it being the intention of the latter company to carry on a branch of their business under the style above named. The "Maple Leaf" is a registered trade mark of the Toronto Rubber Shoe company. Recently some outside parties applied for incorporation under that name, but were frustrated by representations made by the Toronto company, who, in order to prevent any further trouble, have decided to form a second corporation, as indicated.

=The John A. Roebling's Sons Co. of New York, May 25, under New York laws; capital $100,000. To manufacture and deal in iron, steel, wire, etc., including rubber insulated wire. The company will be controlled by the same people as the New Jersey corporation by the same name, and have become incorporated in New York state for greater convenience in doing business and to avoid the disadvantages attached to a foreign corporation.

=Dundee Rubber Co. (Chicago), April 18, under Illinois laws; capital, $2500. Incorporators: Mason A. Bamborough, L. C. Marston, and Sidney A. Adler.

=Milford Rubber Co. (Milford, Mass.), May 24, under Massachusetts laws; capital, $10,000. Incorporators: Leon Aronson, Joseph Goldsmith, Harris B. Gordon, Joseph Aronson, and Wolf Stone. Leon Aronson is president and H. B. Gordon treasurer.

=Palenke Rubber Plantation Co. (San Francisco), May 25, under California laws; capital, $100,000. Incorporators: John W. Butler, F. H. Abbott, R. Herring, and others, San Francisco; J. W. Dayan, Palo Alto, Cal.

=The Rhode Island Automobile Transit Co. (Providence), under Rhode Island laws, to manufacture automobiles and other vehicles; capital $200,000. Two of the incorporators are John J. Banigan and William B. Banigan, lately of the India-rubber trade.

=The Goodyear Rubber Carriage Tire Co., June 14, under Maine laws, to make and sell rubber carriage tires; capital, $50,000. R. L. Kingston, Medford, Mass., is president, and E. P. Sanderson, Waltham, Mass., treasurer.

=The Easy Rubber Tire Co. (New Haven), June 6, under Connecticut laws; capital, $2500. Incorporators: George T. Conover, Edward J. Sisk, G. H. Hamer, Owen A. Groark, and Cornelius H. Conway, all of New Haven.

=Columbia Tire Co. (Chicago), under Illinois laws, to make vehicle tires; capital, $2500. Incorporators: Louis G. Knight, James F. Wells, and H. S. Golze.

=The Xelton Co., June 12, under New Jersey laws, to manufacture "Xelton," a substitute for India-rubber; authorized capital, $5,000,000. Incorporators: Henry M. Landauer, Frank M. Wirgnan, A. Reynolds Colesberry, and George H. B. Martin, giving as their postoffice addreis No. 419 Market street, Camden, N. J. A newspaper report credits the three first named to Philadelphia and the fourth to New York city.

=The Bolivia Rubber Co. (Baltimore), June 12, under Maryland laws, to manufacture rubber goods; capital, $100,000. Incorporators: Frank E. Crew, William H. Clowney, William O. Oursler, John W. Beebe, and Richard J. Hollingsworth.

=Los Soldados Rubber Co., June 14, under New Jersey laws, to deal in India rubber; capital, $200,000. Incorporators: J. Swift Richards, Ella Hartnett, and Samuel Riher, Jr. Principal office: The Corporation Trust Co. building, Jersey City, N. J.

TRADE NEWS NOTES.

THE Berlin Rubber Manufacturing Co., Limited, is the name of a new concern being organized at Berlin, Ont. In response to a recent inquiry they stated that they were not yet ready to furnish any information for publication.

=W. R. Brixey (New York and Seymour, Conn.) has appointed N. W. Mixer, for fourteen years connected with the Western Electric Co., his agent for the sale of "Kerite" insulated wires and cables in the states of Illinois and Michigan, to date from May 1 last. Mr. Mixer's office is at No. 1526 Monadnock building, Chicago.

=The new factory of The P. Carter Bell Co. (Metuchen, N. J.), just completed, is one of the best equipped plants for the production of substitutes and chemical supplies used in rubber manufacture that the United States has yet seen.

=The Empire Rubber Manufacturing Co. have fitted entirely new offices at their factory in Trenton. These include a large office for the bookkeepers, order clerks, etc., a private office for Messrs. Cook and Skirm, and a handsomely furnished reception room for visitors.

=The Hamilton Rubber Manufacturing Co. (Trenton, N. J.) are adding a new brick building to their plant, for storage purposes.

=Mr. Charles L. Johnson, general manager of the United States Rubber Co., and Mr. E. H. Paine, director of sales, sailed for Europe on June 14 on the *St. Louis*. Their departure was witnessed by a gathering of rubber men, including H. G. Armstrong, of the company's Baltimore office, and Charles A. Coe, of Boston. The mission of these gentlemen is in connection with the export department of the company. Mr. Johnson planned an absence of two months, while Mr. Paine is expected back by the middle of July.

=Basofine is a new and valuable ingredient for rubber compounding that is rapidly coming into favor. It is a fine white earth, absolutely neutral, and one that can be combined with anything without harm. It is manufactured by the National Mining and Milling Co., Baltimore, Md.

=The Goodyear's India-Rubber Glove Manufacturing Co. continue to turn out a good line of tennis shoes—canvas uppers and rubber soles, in "balmoral" and "oxford" styles, made in drab, brown, black, and white duck, and black serge. These goods are handled in the northwest by the Goodyear Rubber Co. (St. Paul.)

=A rubber workers' union has been organized by the employés of the rubber department of the Mishawaka Woolen Manufacturing Co. (Mishawaka, Ind.)

=There was considerable inquiry during the past month for second hand tire presses and other tire making equipment, due to a demand for bicycle tires which developed too late in the season to enable manufacturers to construct the machinery wanted in time to meet the needs of the rubber concerns.

=The Wales Goodyear people are exceedingly gratified with the sale of their new duck boot. The sales are beyond what they had anticipated, even after the marked demand for it last year. The Wales-Goodyear company have just got out a new last for misses' and children's goods on "British" toe, designed to meet the wants of the best city trade.

=The jobbers report considerably larger detailed orders on the tennis goods of the United States Rubber Co. than ever before at this season of the year. The whole line is in demand —"Yachting," "Defender," "Outing," and the rest. These shoes have increased in popularity steadily ever since they were put on the market.

=The James Freeman Brown Co. have fitted up very attractive offices at No. 73 Franklin street, New York, and, even to the casual visitor, bear every evidence of doing a rushing business, particularly with the rubber trade.

=E. A. Cabona, some time connected with Dickinson Rubber Works, has accepted a position as salesman with the Brendel Spring Tire Co. (New York.)

=Rubberite is the name of a new and apparently valuable substitute manufactured by Toch Brothers (New York).

=The United States Kommoid Co., about a month ago, moved their factory from New Brunswick, N. J., to Waukegan, Ill., in order to be nearer to their crude supplies. They had hardly settled in their new plant, however, before it was destroyed by fire, but a new plant was at once projected, and it is now well on toward completion.

=A rubber substitute that is having a very large sale in England and Germany, and which is protected by American patents, is offered for sale. Inquirers are referred to THE INDIA RUBBER WORLD.

=The Bailey "Won't-Slip" tire, as adapted for motor carriages, is now being used in New York with great success.

=The Boston Belting Co. send us an attractive folder calling attention to their rubber mats, matting, and treads, manufactured especially for railways, including ornamental mats for parlor and sleeping cars, car step treads, and corrugated vestibule matting.

=The Seamless Rubber Co. (New Haven, Conn.) are to erect a new building, adjoining their present factory on Daggett street, 40×100 feet, four stories, the sides of the upper story and part of the roof to be of metal and glass. It will have an elevator and be lighted by electricity. It is of mill construction and is to be used for general factory purposes.

=W. Melhado, Sons & Co., write from Truxillo, Honduras that they began business at that port on June 1, as importers, exporters, and commission merchants. They will be in a position to execute orders for India-rubber. The firm consists of W. Melhado, W. Melhado, Jr., A. Melhado, and E. Koenemann.

=The Russian-American India-Rubber Co. (St. Petersburg), employing a capital of 4,500,000 rubles, earned last year a net profit of 3,945,222 rubles (=$2,046,625), against 3,198,153 rubles on the business of 1897. A distribution of 50 per cent. in dividends was ordered, against 45 per cent. for 1897.

=Fred. R. Whitworth, No. 112 Water street, Boston, secretary of The New Process Rubber Co., the incorporation of which was reported in the last INDIA RUBBER WORLD, writes, in answer to an inquiry: "As yet we are not in a position to give information for publication. When the proper time comes we shall be pleased to give you an outline of our intentions."

=The Hood Rubber Co. have added to their factory at East Watertown, Mass., within a year, 40,000 square feet of space, which increases their floor area to something more than three acres.

=Fenton's Patent Artificial India-Rubber Syndicate, Limited (London), advise us that their chief agency for the United States has been placed in the hands of Edgar Tate & Co.; No. 245 Broadway, New York.

=Sealed proposals were invited, by the quartermaster's department of the war department, to be opened June 20, for 35,000 rubber ponchos, for the army.

=The Goodyear Rubber Co. have at their St. Paul store a pair of "Gold Seal" rubbers, made and sold in 1887 to Mr. Collins, of Lake City, Minn., and worn by him every year, until the end of March, 1899. A photograph of the shoes shows them to be still in a serviceable condition.

=William T. Baird, treasurer of the Mechanical Rubber Co., announces that coupons due July 1 on the first mortgage gold bonds of that company will be paid on and after this date at the office of the Knickbocker Trust Co., No. 66 Broadway, New York. The New York Belting and Packing Co., Limited, also announce that coupons due July 1 on their 6 per cent. mortgage debenture bonds will be paid at the office of the Knickerbocker Trust Co.

=At the annual meeting of The Easthampton Rubber Thread Co. (Easthampton, Mass.), on June 20, Frederick T. Ryder, secretary of the Boston Rubber Shoe Co., was reëlected treasurer.

=The new address of George A. Alden & Co. (Boston) is in the Wentworth building, No. 170 Summer street, instead of the number given in the last issue of this paper.

=The Joseph Dixon Crucible Co. (Jersey City, N. J.) manufacture a special lubricant for the gears of electric motors for automobiles and other purposes, which is said to have been found very satisfactory both in this country and in France, where the use of motor carriages has been very extensive.

=The employés of the rubber department of the Overman Wheel Co. (Chicopee Falls, Mass.) presented Mr. John J. Kearns with a valuable gold watch chain upon his leaving the position of foreman there to go to the Akron Rubber Works.

=The Lambertville Rubber Co. (Lambertville, N. J.) have erected an addition to one of their buildings which adds largely to their office capacity. The local newspapers compliment the company on the handsome appearance of the adjacent grounds, which are ornamented with flowering plants and plants.

=The La Crosse Rubber Mills Co. (La Crosse, Wis.) have architects at work on plans for a two-story brick factory addition 72×160 feet.

=The Hood Rubber Co. (Boston) are sending out some very interesting advertising matter. Their David and Goliath picture, for example, is sure to attract attention. Goliath's remark when David hit him with a stone—"that such a thing had never entered his head before"—is good, and also true, but not more so than the remarks that follow concerning Hood rubbers.

=In the June INDIA RUBBER WORLD the list of officers recently elected by the American Rubber Co. (Boston) was not altogether correct, the treasurer being Mr. George P. Eustis, who is also the clerk of the corporation.

=The Editor of THE INDIA RUBBER WORLD is indebted to Vice President Townsend, of the Manhattan Rubber Manufacturing Co. (New York), for a very handsomely bound Manhattan catalogue, lettered in gold with the recipient's name.

=The Hamilton Rubber Manufacturing Co. (Trenton, N. J.) have added a new one story brick boiler house to their buildings.

=The ninth annual meeting of the Southern Hardware Jobbers' Association, at Atlantic City, N. J., on June 14–16 was attended by representatives of the Trenton Rubber Manufacturing Co., the Whitehead Brothers Rubber Co., and the Crescent Belting and Packing Co., all of Trenton, N. J.

=The Woonsocket Rubber Co. (Woonsocket, R. I.) were advertising recently for help—something which they had not found necessary before for years. Superintendent F. T. Comee is quoted as saying that the outlook for steady work at the company's factories is better than in any former season, on account of the great number of early orders in hand.

=The Seamless Rubber Co. (New Haven, Conn.) have issued a new booklet describing their "Nearkid" rubber gloves which is both attractive in appearance and interesting as reading matter.

=The American Rubber Co. (Boston) have filed with the commissioner of corporations in Massachusetts a certificate of their condition on June 3, showing: *Assets*—Land and water power, $37,287; buildings, $148,617; machinery, $136,927; cash and debts receivable, $742,122; manufactures, merchandise, material and stock in process, $1,150,177; patent rights, $1000; miscellaneous, $1946; total, $2,218,076. *Liabilities*—Capital stock, $1,000,000; balance profit and loss, $352,342; reserve for depreciation, $865,734; total, $2,218,076.

=All the piece hands working at the factories of the Boston Rubber Shoe Co. were given a larger ticket, beginning on June 19, which means the addition of several thousand dollars to the weekly pay roll.

=The Gutta-Percha and Rubber Manufacturing Co. (New York) will remove, about the first of August, from their present location, which they have occupied for many years, to No. 126 Duane street—the southwest corner of Church and Duane, three blocks north of the store which they now occupy. The Duane street store is that occupied until lately by Magovern & Thompson Brothers, shoe jobbers. The Gutta-Percha company will occupy the ground floor, basement, and sub basement, giving them altogether about 50 per cent. more floor area than hitherto.

=The Manufactured Rubber Co., organized recently to make a rubber substitute, have secured the old Keystone Match Co.'s factory at Camden, N. J., and expect to begin turning out their new product within a month.

=W. G. Grieb, of the Philadelphia shoe trade, and president of the Grieb Rubber Co., has resigned as secretary of the Middle States Shoe Jobbers' Association.

=Frederick M. Shepard, Jr., has been elected treasurer of the Goodyear Rubber Co. (New York.)

INDIVIDUAL MENTION.

MR. WILLIAM J. CABLE, president of the Cable Rubber Co. (Boston), has removed to Duxbury, Mass., where he has purchased a summer home.

=Mr. Frank Cazenove Jones, president of the Manhattan Rubber Manufacturing Co. (New York), returned lately from a two months' trip to Europe.

=Dr. Charles F. Chandler, professor of chemistry in Columbia University, New York, and who has devoted much attention to the investigation of India-rubber, was honored abroad lately by being elected president of the Society of Chemical Industry at the annual meeting of that body held in Glasgow. Dr. Chandler is the first American chemist to be chosen to the presidency.

=Mr. William T. Baird, treasurer of the Mechanical Rubber Co., has been elected a member of the Hardware Club of New York.

=Mr. Charles R. Flint, of New York, delivered an address on "Industrial Organization" before a company of Boston business men, at a complimentary dinner given to him in the latter city on May 25, by Mr. William M. Wood. The address has attracted no little attention, and to meet a demand it has been printed in a neat pamphlet, of which a copy has been received by THE INDIA RUBBER WORLD.

A DUNLOP RUMOR DENIED.

TO THE EDITOR OF THE INDIA RUBBER WORLD: This company has not been acquired by the American Bicycle Co.

AMERICAN DUNLOP TIRE CO.,
KIRK BROWN, Manager.

Essex, via Belleville, N. J., June 29, 1899.

REVIEW OF THE CRUDE RUBBER MARKET.

THE condition of the rubber market during the past month has been, for the most part, one of quiet. Some improvement, from the standpoint of the seller, was apparent about the middle of the month when, for a short time, Pará sorts were in better demand and ruled firmer. Later, however, there was a return to a general condition of dulness, and toward the end of the month the sales made were, as a rule, small and unimportant, considered singly, though there was sufficient activity among the manufacturers to make the aggregate of their demands of considerable proportions. Compared with our last published report, there has been a material decline in prices. But how long the present market will continue is problematical, for at this date one year ago a sharp rise began which did not end until the highest figure of the year had been reached, about the middle of August.

The end of June marks also the end of the Pará rubber year. The yield has been the largest on record, the figures for several years being as follows (in tons). The figures given for the last year include the arrivals reported by cable up to the close of business of June 29, practically completing the year:

1894-95.	1895-96.	1896-97.	1897-98.	1898-99.
19,470	20975	22,320	22,260	25,185

Mail advices from Pará dated June 14 report: "The downward movement in rubber prices has still further been accentuated by depressing reports from the consuming markets and the persistent advance of exchange. The redeeming feature, however, is that stocks in first hands are very moderate, consisting of about 200 tons firmly held in very few hands, and practically off the market at the present level of prices. Furthermore, future supplies must necessarily remain small during the next three months."

In regard to the financial situation, Albert B. Beers (broker in India rubber and commercial paper, No. 58 William street New York) advises us as follows:

"During June the money market has been very easy, with a good demand for paper, the best rubber names endorsed ruling at 3½ @ 4 per cent. and single names 4 @ 5 per cent. for the best, and 5 @ 6 per cent. for smaller concerns."

The latest quotations in the New York market are:

PARÁ.		**AFRICAN.**	
Islands, fine, new	95 @96	Tongues	61 @62
Islands, fine, old	none here	Sierra Leone	52 @78
Upriver, fine, new	98 @99	Benguella	66 @67
Upriver, fine, old	101 @102	Congo ball	63 @64
Islands, coarse, new	63 @64	Cameroon ball	62 @63
Islands, coarse, old	none here	Flake and lumps	45 @46
Upriver, coarse, new	77 @78	Accra flake	21 @22
Upriver, coarse, old	none here	Accra buttons	66 @67
Caucho (Peruvian) sheet	59 @60	Accra strips	69 @70
Caucho (Peruvian) strip	none imported now.	Lagos buttons	64 @65
Caucho (Peruvian) ball	74 @75	Lagos strips	65 @66
CENTRALS.		Liberian flake	@
Esmeralda, sausage	66 @67	Madagascar, pinky	82 @83
Guayaquil, strip	52 @53	Madagascar, black	none here
Nicaragua, scrap	65 @66	**GUTTA-PERCHA.**	
Mangabeira, sheet	60 @61	Fine grade	1.50
EAST INDIAN.		Medium	1.30
Assam	79 @80	Hard white	1.00
Borneo	38 @50	Lower sorts	50
		Balata	

Late Pará cables quote:

	Per Kilo		Per Kilo.
Islands, fine	8$900	Upriver, fine	10$600
Islands, coarse	4$600	Upriver, coarse	7$600

Exchange 8*d*.

NEW YORK RUBBER PRICES FOR MAY.

	1899.	1898.	1897.
Upriver fine	99@1 02	94 @95	85½@88
Upriver coarse	82@86	73½@75½	55½@57½
Islands fine	99@1 01½	92 @93	83 @84
Islands coarse	67@71	63 @65	45½@48
Cametá coarse	69@72	68½@69½	59 @60

STATISTICS OF PARA RUBBER (METRIC TONS).

NEW YORK.

	Fine and Medium.	Coarse.	Total. 1899.	Total. 1898.	Total. 1897.
Stocks, April 30	431	105 =	536	322	262
Arrivals, May	285	164 =	449	453	752
Aggregating	716	269 =	985	775	1014
Deliveries, May	361	177 =	538	498	734
Stocks, May 31	355	92 =	447	277	280

	PARÁ.			ENGLAND.		
	1899.	1898.	1897.	1899.	1898.	1897.
Stock, April 30	570	170	390	885	910	1545
Arrivals, May	1400	1000	930	910	435	510
Aggregating	1970	1170	1320	1795	1345	2055
Deliveries, May	1450	1067	1105	650	550	525
Stocks, May 31	520	103	215	1145	795	1530

	1899.	1898.	1897.
World's supply, May 31 (excluding Caucho)	2655	1639	2377
Pará receipts, July 1 to May 31	24,285	21,410	21,270
Afloat from Pará to United States, May 31	84	—	—
Afloat from Pará to Europe, May 31	449	—	—

THE ANTWERP RUBBER MARKET.

TO THE EDITOR OF THE INDIA RUBBER WORLD: At the inscription of May 25, 207,284 out of 242,000 kilograms which were offered were sold. Prices were irregular. Lower Congo thimbles (42 tons) were sold at valuation, whereas other qualities—such as Bussira, Aruwimi, Uellé, and Equateur—were sold at 4 to 5 per cent. under valuation. The United States seem to have bought some of the chief lots. To-day's inscription shows a decline on prices paid on May 25 of about 4 to 5 per cent. We must add that valuations were made up in accordance with prices paid at the sale of April 28. Nearly all the big lots have been sold; from the parcel of 75 tons Mongalla (No. 372) 32 tons have been sold at a medium price of 8.15 (valuation 9 francs). The remainder is obtainable at the same price. Lot No. 374, 24,700 kilograms Mongalla (valued 8.40 francs) has been withdrawn and is held at 8.20 francs. Out of 253 tons offered, about 144 tons have been sold.

Antwerp, June 3, 1899. C. SCHMID & CO.

TO THE EDITOR OF THE INDIA RUBBER WORLD: At yesterday's sale by inscription prices were irregular, but showed but little difference compared with those paid at the sale of June 3. The decline on valuations, which were made up before the sale of June 3, is about 2 to 3 per cent. for some qualities, such as Kassais, and 5 to 7 per cent. for others, as Upper Congo ordinary and Lopori, whereas Lower Congo red thimbles have been sold at about 1 per cent. under valuation. The qualities interesting the United States have mostly been withdrawn. About 274 tons were offered, of which about 173 tons were sold. The principal parcels sold were:

No. 410, of which 10,000 kilos Upper Congo ordinary, at 8.77½ francs; 4000 kilos at 8.50 francs and the remainder, about 5000 kilos, at 8.47½ francs.

No. 417—8362 kilos Upper Congo ordinary sold at 8.47½ francs.

No. 424—Upper Congo—Lopori, 5000 kilos, at 9 35 francs; 5000 kilos at 9 22 francs and the remaining 50,000 kilos at 9.15 francs.

The principal lots withdrawn are:

No. 413—5710 kilos Aruwimi held at francs 9 (valuation francs 920).

No. 414—10,462 kilos Lake Leopold II held at francs 7.80 (valued francs 8.)

No. 418—22,540 kilos Upper Congo—Mongalla held francs 9. (valued 9)

To-day No. 420 (8419 kilos Upper Congo—Mongalla) has been sold at secret price. The next arrivals are expected by the steamer *Leopoldville* and comprise:

Caisse hypothécaire Anversoise	180 tons
Société ABIR	145 tons
Société Anversoise	34 tons
Comptoir Commercial Congolais	20 tons
Société du Haut Congo	6 tons
Soc. An. d'Agriculture and de Plantations au Congo	5 tons
Plantations Lacour	4 tons
Total (about)	394 tons

C. SCHMID & CO.

Antwerp, June 16, 1899.

STATISTICS FOR MAY.

[*The figures denote kilograms.*]

DETAILS.	1899.	1898.	1897.	1896.	1895.
Stocks, April 30	521,303	186,246	145,468	39,668	98,236
Arrivals, May	220,822	79,922	115,482	72,240	28,873
Total	742,125	266,168	260,950	111,908	127,109
Sales in May	238,775	75,905	140,184	50,968	52,665
Stocks, May 31	503,350	190,263	120,766	60,940	74,444
Arrivals since January 1	1,430,686	741,523	582,591	257,092	185,461
Sales since January 1	1,190,676	645,723	601,094	285,006	150,449

PRINCIPAL SORTS OF CONGO RUBBER

SOLD AT ANTWERP DURING THE FIRST HALF OF 1899.

SALES	January.	March.	June.
Kilos.	*Francs.*	*Francs.*	*Francs.*
Upper Congo-Lopori 134,000	9.75	10.70	9.15
Upper Congo-Mongalla 106,000	8.25@8.65	9.05@9.25	8.—@8.25
Upper Congo balls 160,000	8.75@8.80	9 30@9 40	8 60@8 50
Upper Congo-Uellé strips 72,000	9 25	10.15@10 30	9.05@9.10
Upper Congo Aruwimi 83 000	8.57½	9.22½	8.50
Upper Congo-Lake Léopold II. 47 000	8.25	9.10	7.60@7.80
Upper Congo-Equateur 157 000	9.60	10 25@10.40	9.05@9.10
Upper Congo-Bussira 84,000	9.07½	10.25	9.—@9.05
Lower Congo red thimbles 121,000	5.80	6 25	5 70@5.75
Congo-Kassai, red, I 69 000	9.90	10 55	9.90@10.—
Congo-Kassai, black, I 8,000	9.60@9 65	9 80@9 85	9.20@9.25
Congo-Kassai, black, II 19.000	9.—@9.25	9 20@9 40	8.9.@9.—

Antwerp, June 16, 1899. E. KARCHER & CO.

THE BALATA MARKET.

REFERRING to the note on the supply of Balata in THE INDIA RUBBER WORLD of May 1 (page 203), Messrs. Weise & Co., of Rotterdam, advise us under date of May 29:

"According to official records from Surinam, the export of sheet Balata in [the season of] 1898 has been 101,124 pounds less than in 1897 and 212,039 pounds less than in 1896, viz.:

	1898.	1897.	1896.
Pounds	250,331	351,455	462,370

"The total surface of concessions given out for collecting Balata is 93,350 hectares against 241,675 hectares. Consequently, this industry is strongly on the decline, and higher prices for Balata cannot fail to come."

The governor of Surinam, in his speech at the opening of parliament at Paramaribo, on May 20, stated that the production of Balata in that colony was decreasing, and that the trade was now kept up by only two *concessionaires*. The revenue from the sale of rights to gather Balata is estimated at 10,000 gulden in the budget for next year, against 20,000 gulden for 1899. The holders of concessions are not disposed to renew them, and there are few new applicants.

IMPORTS FROM PARA AT NEW YORK.

May 31.—By the steamer *Hildebrand*, from Manáos and Pará:

IMPORTERS.	Fine.	Medium.	Coarse.	Caucho.	Total.
New York Commercial Co	111,500	14,300	43,200	1,600=	170,600
Crude Rubber Co.	26,400	3,900	20,900	43,800=	95,000
Reimers & Meyer	41,000	8,800	37,200	4,200=	91,200
Lawrence Johnson & Co.	23,900	5,400	13,500	41,300=	84,100
Albert T. Morse & Co.	25,000	12,500	23,300	=	60,800
William Wright & Co.	24,600	2,700	6,200	=	33,500
G. Amsinck & Co.	7,500	5,500	7,000	=	20,000
Kunhardt & Co.	3,700	1,300		=	5,000
Hagemeyer & Brunn	2,200		800	=	3,000
Total	265,800	54,400	152,100	90,900=	563,200

June 12.—By the steamer *Horatio* from Pará:

Crude Rubber Co.	76,400	10,700	19,300	300=	106,700
New York Commercial Co.	35,300	4,000	13,000	900=	52,200
Reimers & Meyer	15,500	2,800	2,800	=	21,100
Total	127,200	17,500	35,100	1,200=	181,000

June 17.—By the steamer *Grangense* from Manáos and Pará:

New York Commercial Co.	91,900	10,000	40,900	57,300=	200,100
Crude Rubber Co.	133,500	18,900	48,200	6,200=	206,800
Reimers & Meyer	48,200	7,600	27,100	20,200=	103,100
Albert T. Morse & Co.	13,800	1,100	12,100	42,800=	69,800
William Wright & Co.	36,800	7,100	10,100	8,800=	62,800
Boston Rubber Shoe Co.	21,400	3,600	6,700	22,200=	53,900
Otto G. Mayer & Co.				30,200=	30,200
Hagemeyer & Brunn	2,800		1,200	=	4,000
Total	348,400	48,300	146,300	187,700=	730,700

June 26.—By the steamer *Paraense*, from Pará:

New York Commercial Co.	26,500	2,800	15,400	2,800=	47,500
Albert T. Morse & Co.	2,100		24,600	7,700=	34,400
Otto G. Mayer & Co.				32,700=	32,700
Reimers & Meyer	3,600	700	20,700	1,000=	26,000
Boston Rubber Shoe Co.				17,600=	17,600
Crude Rubber Co.	7,500	1,100	6,200	4,700=	19,500
Total	39,700	4,600	66,900	66,500=	177,700

[NOTE.—The steamer *Hubert* sailed from Pará on June 24, with 186 tons of rubber for New York.]

PARA RUBBER VIA EUROPE.

	POUNDS.	
JUNE 3.—By the *Etruria*=Liverpool:		
Reimers & Meyer (Coarse)	5,200	
JUNE 8.—By the *Teutonic*=Liverpool:		
George A. Alden & Co. (Fine)	5,500	
Crude Rubber Co. (Fine)	5,500	11,000
JUNE 10.—By the *Campania*=Liverpool:		
George A. Alden & Co.—(Fine)	5,400	
Crude Rubber Co. (Fine)	5,500	10,900
JUNE 19.—By the *Umbria*=Liverpool:		
Crude Rubber Co (Fine)		22,500
JUNE 19.—By the *La Bretagne*=Havre:		
Albert T. Morse & Co. (Caucho)		94,000
JUNE 21.—By the *Majestic*=Liverpool:		
Crude Rubber Co (Fine)		52,000
JUNE 24.—By the *Lucania*=Liverpool:		
Crude Rubber Co. (Fine)	20,000	
Otto G. Mayer & Co. (Fine)	11,000	
Otto G. Mayer & Co. (Coarse)	22,000	53,000

OTHER ARRIVALS AT NEW YORK.

CENTRALS.

	POUNDS.	
MAY 24.—By the *El Mar*=New Orleans:		
H. W. Peabody & Co.	1,200	
Eggers & Heinlein	500	12 500
MAY 24.—By the *Majestic*=Liverpool:		
Reimers & Meyer		15,800
MAY 26.—By the *Orizaba*=Mexico:		
Graham Hinckley & Co.	2,000	
H. Marquardt & Co.	1 000	
Mexican Export Co	500	3,500
MAY 29.—By the *El Paso*=New Orleans:		
Albert T. Morse & Co.		7,000
MAY 31.—By the *Alleghany*=Cartagena:		
Park, Son & Co.	2,000	
Kunhardt & Co.	1,500	
Guiterman, Rosenfeld & Co.	1,000	
G. Amsinck & Co.	1,200	
Roldan & Van Sickle	500	
Schultz & Ruckgaber	400	
A. M. Capen Sons	400	7,000
MAY 31.—By the *Troja*=Mexico:		
H. Marquardt & Co.	2 800	
Flint, Eddy & Co.	1,500	
L. Monjo, Jr. & Co.	700	
L. N. Chemedlin Co.	500	5,500
MAY 31.—By the *Advance*=Colon:		
Hirzel, Feltman & Co.	9,554	
Crude Rubber Co.	4,807	
Flint, Eddy & Co.	4,154	
A. P. Strout	2,933	
Lanman & Kemp	2,521	
G. Amsinck & Co.	2,148	
M. Valverder & Co.	2,125	
J. Aparicio & Co.	1,355	
Kunhardt & Co.	1,287	
Elmenhorst & Co.	1,229	
Theo. Herrmann	1,188	
Eggers & Heinlein	1,000	
Samuels Brothers	1,058	
Roldan & Van Sickle	995	
Ellinger Brothers	502	
A. N. Rotholz	224	37,100
JUNE 1.—By the *Bicla*=Bahia:		
J. H. Rossback & Bros		2,000
JUNE 2.—By the *Vigilancia*=Mexico:		
H. Marquart & Co.	2,500	
E. Steiger & Co.	1,000	
Thebaud Brothers	500	4,000
JUNE 5.—By the *Altai*=Greytown:		
Andreas & Co.	3,500	
A. P. Strout	2 500	
A. D. Straus & Co.	1,500	
G. Amsinck & Co.	500	8,000
JUNE 5.—By the *Villaverde*=Mexico:		
F. Matherson, Jr.	1,500	
H. Marquardt & Co.	1,000	
Punderford & Co.	300	2,8 0
JUNE 6.—By the *Ardanrose*=Belize:		
Eggers & Heinlein	2 500	
Pomares & Cushman	600	
A. S. Lascellas & Co.	100	
Guiterman Rosenfeld & Co	100	3,300
JUNE 6.—By the *Algiers*=New Orleans:		
A. T. Morse & Co		7,000
JUNE 6.—By the *Athos*=Cartagena:		
Park, Sons & Co.	3,500	
For Bremen	2,500	
Kunhardt & Co	600	
Munoz & Espriella	400	7,000
JUNE 8.—By the *Teutonic*=Liverpool:		
Reimers & Meyer	6 500	
Livesey & Co	8,200	14,700
JUNE 9.—By the *Palatia*=Hamburg:		
Reimers & Meyer		6,500
JUNE 10.—By the *Seneca*=Mexico:		
H. Marquardt & Co.	1,000	
E. N Tibbals	200	
J. L. Mantiner	1,500	2,700
JUNE 12.—By the *Finance*=Colon:		
G. Amsinck & Co.	11,178	
Isaac Brandon & Bros.	8,353	
Hirzel, Feltman & Co.	5.292	
Munoz & Espriella	3,820	
Crude Rubber Co.	3 035	
A. M. Capen Sons	2.660	
Roldan & Van Sickle	2 470	
Czarnikew, McDougal & Co.	2,000	
Dumarest & Co	1,856	
Ellinger Brothers	10,000	
Piza Nephews & Co.	1,153	
W. R Grace & Co	695	
Flint, Eddy & Co	588	
Eggers & Heinlein	600	53,700
JUNE 12.—By the *Louisiana*=New Orleans:		
Albert T. Morse & Co.		4,700
JUNE 13.—By the *Adirondack*=Cartagena:		
Park, Son & Co.	6,500	
Flint, Eddy & Co	4,500	
Roldan & Van Sickle	3,500	
Mecke & Co.	1,500	
Ellinger Brothers	800	
L. Johnson & Co	500	
Kunhardt & Co.	100	
For London	1,800	19,200
JUNE 14.—By the *Wordsworth*=Pernambuco:		
Allerton D. Hitch	3,500	
Reimers & Meyer	5,500	9,000
JUNE 19.—By the *Carib*=Truxillo:		
Eggers & Heinlein	12,000	
J. Agostini	1,700	
H. W. Peabody & Co.	3,500	17,200
JUNE 20.—By the *El Dorado*=New Orleans:		
Albert T. Morse & Co.		11,500
JUNE 23.—By the *Orizaba*=Mexico:		
E. Steiger & Co	2,000	
Thebaud Brothers	2,000	
H. Marquardt & Co.	600	
F. Matherson, Jr.	500	
J. L. Mantner	200	5.200
JUNE 20.—By the *Alene*=Cartagena:		
A. P. Strout	5,000	
J. H. Lang	5,000	
D. A. De Lima & Co	4,000	
Park, Son & Co.	4,000	
Kunhardt & Co.	2,500	
Flint, Eddy & Co.	1,200	
G. Amsinck & Co.	1,200	
Guiterman, Rosenfeld & Co.	1,000	
Munoz & Espriella	700	
Punderford & Co.	500	
Roldan & Van Sickle	200	
Ellinger Brothers	100	
For London	1,200	26,600

JUNE 21.—By the *Allianca*=Colon:

Isaac Brandon & Bros	4,345	
Dumarest & Co.	4,118	
Roldan & Van Sickle	3,498	
Eggers & Heinlein	2,380	
F. Probst & Co	2,153	
Lanman & Kemp	1,900	
Flint, Eddy & Co.	1,714	
G. Amsinck & Co.	1,421	
J. Aparicio & Co.	1,395	
Mosle Brothers	1,198	
W. R. Grace & Co	990	
W. Loaiza & Co.	690	25,800

JUNE 23.—By the *Buffon*=Bahia:

New York Commercial Co.	3,000	
Herbst Bros.	2,200	
Lawrence, Johnson & Co	3,800	9,000

AFRICANS.

MAY 24.—By the *Phœnicia*=Hamburg:

	POUNDS	
Reimers & Meyer	49,000	
Crude Rubber Co.	10,000	
George A. Alden & Co	11,400	70,400

MAY 24.—By the *Kensington*=Antwerp:

Reimers & Meyer		8,800

MAY 24.—By the *Majestic*=Liverpool:

Otto G. Mayer & Co.		15,800

MAY. 26.—By the *Graf Waldersee*=Hamburg:

George A. Alden & Co.		11,000

MAY 27.—By the *Lucania*=Liverpool:

Livesey & Co		14,200

JUNE 2.—By the *Britannic*=Liverpool:

Livesey & Co.	12,400	
Albert T. Morse & Co.	7,500	
Otto G. Mayer & Co.	1,800	21,700

JUNE 3.—By the *Etruria*=Liverpool:

Reimers & Meyer	4,500	
Albert T. Morse & Co	11,000	
Livesey & Co.	9,000	24,500

JUNE 6.—By the *Peninsular*=Lisbon:

Albert T. Morse & Co.	26,700	
George A. Alden & Co.	15,300	
Crude Rubber Co.	15,200	57,000

JUNE 6.—By the *Friesland*=Antwerp:

Albert T. Morse & Co		19,000

JUNE 8.—By the *Teutonic*=Liverpool:

George A. Alden & Co.	3,000	
Crude Rubber Co.	3,000	
Livesey & Co	4,500	10,500

JUNE 9.—By the *Palatia*=Hamburg:

Albert T. Morse & Co		11,500

JUNE 10.—By the *Campania*=Liverpool:

Otto G. Mayer & Co.	12,000	
George A. Alden & Co.	5,500	
Crude Rubber Co.	6,000	23,500

JUNE 14.—By the *Southwark*=Antwerp:

Otto G. Mayer & Co.	56,000	
Joseph Cantor	22,000	
Reimers & Meyer	27,000	105,000

JUNE 16.—By the *Pretoria*=Hamburg:

George A. Alden & Co	11,800	

JUNE 16.—By the *Germanic*=Liverpool:

George A. Alden & Co	16,300	
Crude Rubber Co	14,000	
Albert T. Morse & Co	5,400	35,700

JUNE 19.—By the *Umbria*=Liverpool:

Livesey & Co	16,600	
Otto G. Mayer & Co	8,400	
George A. Alden & Co.	6,000	
Crude Rubber Co.	6,000	
Reimers & Meyer	3,500	40,500

JUNE 20.—By the *Westernland*=Antwerp:

Albert T. Morse & Co.	65,000	
Joseph Cantor	6,000	71,000

JUNE 21.—By the *Brasilia*=Hamburg:

George A. Alden & Co	12,000	
Crude Rubber Co	11,500	23,500

JUNE 21.—By the *Majestic*=Liverpool:

Livesey & Co		7,500

JUNE 23.—By the *Patria*—Hamburg:

Reimers & Meyer		65,000

EAST INDIAN.

MAY 31.—By the *Nomadic*=Liverpool:

	POUNDS.	
Reimers & Meyer		6,200

JUNE 1.—By the *Angola*=Calcutta:

George A. Alden & Co		2,800

JUNE 19.—By the *New York*=Southampton:

Reimers & Meyer		3,000

JUNE 21.—By the *Dunblane*=Calcutta:

George A. Alden & Co		5,700

JUNE 23.—By the *Acara*=Calcutta:

Reimers & Meyer		22,000

JUNE 23.—By the *Lio*=Singapore:

Reimers & Meyer	32,500	
J. W. Greene & Co.	35,000	
Windmuller & Roelker	15,000	
D. P. Cruikshank	10,000	
George A. Alden & Co. (Pontianak)	224,000	
Reimers & Meyer (Pontianak)	450,000	
Windmuller & Roelker	105,000	
D. P. Cruikshank	22,000	883,500

GUTTA-PERCHA.

MAY 22.—By the *Manilon*=London:

	POUNDS	
Robert Soltau & Co		24,200

MAY 31.—By the *Menominee*=London:

Lamb Manufacturing Co.		4,500

JUNE 2.—By the *Pennsylvania*=Hamburg:

Robert Soltau & Co.		17,000

JUNE 9.—By the *Palatia*=Hamburg:

Robert Soltau & Co		29,000

JUNE 12.—By the *Marquette*=London:

H. H. Smythe		8,600

JUNE 23.—By the *Lio*=Singapore:

Reimers & Meyer		2,500

[NOTE.—There have been no arrivals of Balata since our last published report.]

CUSTOM HOUSE FIGURES.

PORT OF NEW YORK—MAY.

Imports:	POUNDS.	VALUE.
India-rubber	3,303,932	$2,219,148
Gutta-percha	88,354	64,938
Gutta jelatong	547,348	12,425
Total	3,919,634	$2,296,511
Exports:		
India-rubber	88,354	$61,938
Gutta-percha	8,869	931
Reclaimed rubber	217,503	24,528

BOSTON ARRIVALS.

	POUNDS.
MAY 15.—By the *Catalonia*=Liverpool:	
Livesey & Co.—Africans	9,111
MAY 16.—By the *Canada*=Liverpool:	
George A. Alden & Co.—Africans	10,455
MAY 20.—By the *Herman Winter*=New York:	
[From the *Westernland*, Antwerp, arrived New York, May 17]—Africans	11,023
MAY 23.—By the *Ultonia*=Liverpool:	
Livesey & Co.—Africans	8,201
Livesey & Co.—Centrals	2,418
MAY 23.—By the *Maroa*=Hamburg:	
Reimers & Meyer—Africans	8,915
MAY 24.—By the *Bay State*=Liverpool:	
Reimers & Meyer—Africans	4,000
Livesey & Co.—Africans	9,228
MAY 27.—By the *Pavonia*=Liverpool:	
Livesey & Co.—Africans	8,142

[NOTE.—An item of 500 pounds, entered at Boston on May 1 as "India-rubber," consisted of old shoes and is not included in the present statement.]

	POUNDS.	VALUE.
Total for May	71,493	$ 47,317
Total for April	204,780	119,618
Total for March	89,170	51,945
Total for February	317,936	197,523
Total for January	247,345	147,488

NEW ORLEANS.

MAY.

	POUNDS.	VALUE.
From Honduras	1,083	$ 471
From Nicaragua	51,391	33,729

MAY EXPORTS OF INDIA-RUBBER FROM PARA.

[NOTE.—The figures denote weights in Kilograms.]

EXPORTERS.	UNITED STATES.					EUROPE.					TOTAL.
	FINE.	MEDIUM.	COARSE.	CAUCHO.	TOTAL.	FINE.	MEDIUM.	COARSE.	CAUCHO.	TOTAL.	
Pusinelli, Prüsse & Co.	35,058	6,538	21,022	2,100	64,718	91,148	21,641	37,246	20,580	170,615	235,333
Adelbert H. Alden	113,511	16,134	48,044	2,460	180,149	—	—	—	—	—	180,149
La Rocque da Costa & Co.	25,714	9,398	29,685	—	64,797	35,244	4,450	32,334	10,560	82,588	147,385
The Sears Pará Rubber Co.	58,480	8,330	29,980	30,180	122,970	—	—	—	—	—	122,970
Denis Crouan	20,400	3,640	9,820	6,260	40,120	14,620	1,360	6,280	—	22,260	62,380
Rudolf Zietz	—	—	—	—	—	24,588	2,520	15,527	—	42,635	42,635
R. Suarez & Co.	—	—	—	—	—	20,619	3,279	1,651	—	25,549	25,549
Singlehurst, Brocklehurst & Co.	—	—	—	—	—	5,620	605	147	—	6,372	6,372
York Lajeunesse	—	—	—	—	—	3,520	320	2,400	—	6,240	6,240
Kanthack & Co.	—	—	—	—	—	4,580	706	323	—	5,609	5,609
Pires, Teixeira & Co.	1,050	—	400	—	1,450	—	—	—	—	—	1,450
Sundry small shippers	2,400	480	3,080	—	5,960	170	—	80	—	250	6,210
Direct from Iquitos	—	—	—	—	—	8,904	186	62,471	60,394	132,045	132,045
Direct from Manáos	14,337	5,354	8,129	20,675	48,495	157,420	20,280	82,144	82,055	341,899	390,394
Total	270,950	49,874	146,160	61,675	528,659	366,523	55,347	240,603	173,589	836,062	1,364,721